

Court ruling on contracts could affect academics

by Ngalo Crequer

Universities are studying closely a decision of the Court of Appeal which clarified the law relating to fixed term contracts and which could have wide-ranging implications for thousands of academics.

And following the decision the Association of University Teachers was this week sending out fresh guidance to its members as to how they now stand in relation to claims for unfair dismissal compensation and redundancy payments.

In *Dixon v British Broadcasting Corporation and Constant v British Broadcasting Corporation* the Court of Appeal dismissed appeals by the BBC against an Employment Appeal Tribunal. The EAT had allowed appeals by two porters, Mr Leonard David Dixon and Mr B. Constant, whose applications for compensation for unfair dismissal had been dismissed by a Manchester industrial tribunal. The Court of Appeal decision was reported in *The Times*, October 6, 1978.

The two men claimed for unfair dismissal depending on whether they had been dismissed at all. They had been employed for an indefinite period, which had then been extended to a given date, unless notice was given on either side. Came the given date the contracts were not renewed and they claimed unfair dismissal.

The BBC had held that the contracts were not for a "fixed term" since they were determinable by

notice. But the Court of Appeal held that "fixed term" in the context of unfair dismissal means a specified term even though it may be terminable by notice.

The Appeal Court decision will go some way to ending the legal confusion within the universities over the rights of lecturers on short-term contracts to make claims if the contracts come to an end. Mr Laurie Supper, general secretary of the AUT, said this week there were about six cases pending in the university sector concerning people on short-term contracts wondering if they could make redundancy or unfair dismissal claims.

In the light of previous lower court decisions it was claimed that where the law held that a contract was not for a fixed term, then they just ran out and claims for unfair dismissal were not admissible.

The Court of Appeal has now decided that a contract with a fixed beginning and a fixed end is a fixed-term contract whether or not there is provision for notice to be given on either side. This could have implications for current contracts and may influence the drawing up of new ones.

The AUT will be discussing the issue at two briefing sessions in plans to hold in Edinburgh and Manchester next week. The Committee of Vice-Chancellors and Principals is also studying the court transcript to see if new guidance needs to be given to universities.

NATFHE poised for action on pay scales merger

by David Jobbins

Industrial action may be considered by the NATFHE executive if its demand for a merger of the two lowest pay scales for lecturers is not met on Monday.

The management panel of the Bursarial further education committee is then to give its detailed response to union negotiators at a meeting held by NATFHE members supporting their claim for the Lecturer 1 and Lecturer 2 grades to be combined in one scale from £3,192 up to £6,656.

What the final response will be is not certain, although the initial reaction when the claim was lodged three months ago was not promising. Speculation ranges from outright rejection to a formula which the union leadership might regard as a basis for talks.

Support for industrial action has seemed to be on the wane. A plan of action including one-day strikes while the panel considered its response was decisively rejected at branch meetings. Only 280 branches met to vote on a resolution confirming the policy—administered early in September when many colleges were still on vacation.

A special NATFHE national council meeting in March will consider

action in advance of Monday's meeting. But it did authorize the executive to consider action if the management response was unsatisfactory. But the union's influential Rank and File faction, instrumental in swinging the June conference behind the claim, is determined to prevent the issue getting swallowed up in the pay claim. It is to launch a campaign in support of the merger as a priority.

The policy was imposed on a reluctant executive by the June conference, but the union leadership is disturbed at the log-jam of 12,000 lecturers at the top of the lower pay scale. The report of the effect of a management agreement to transfer 1,500 jobs from Lecturer 1 grade to the higher grade as marginal.

The leaders' fear has been that pursuit of the merger claim might weaken NATFHE's recruiting position in the polytechnics. Most of the union's 70,000 members are in further education teaching outside the polytechnics, as are most of the teachers stuck at the top of Lecturer 1. One body of opinion within the union is reluctant to support any action which might alienate potential members in the polytechnics and produce a split indirectly of benefit to the rival Association of Polytechnic Teachers.

Local authorities continue Oakes battle

by Peter David

Government plans to set up the national higher education body proposed in the Oakes report, and announced in legislation in next month's Queen's Speech, have run into renewed opposition from local government leaders.

At a meeting last week leaders of the Association of County Councils and the Association of Metropolitan Authorities refused to endorse the Oakes report, saying that the price of local government support for legislation on Oakes would be renunciation of the constitution of the proposed body, with a substantial increase in the proportion of local authority places.

Membership of the national body was the most contentious issue during the meetings of the Oakes com-

mittee last year. By the time the report was published in March local authorities had pushed their membership up from seven out of 24 to nine out of 28. In addition the local government group was given a vote of veto.

At last week's meeting, however, the local associations repeated their demand for an increase of members giving authorities a majority on the national body. If the Government refuses to concede increased representation, the authorities would like their vote power strengthened, possibly by the removal of a requirement that their representatives must be unanimous before using it.

But the authorities have been warned by Mrs Williams and Mr Oakes that by reopening talks on the currently negotiated constitution

DES bends rules to help recruitment

by Judith Judd

Colleges with teacher training will be allowed by the Department of Education and Science to admit more students to one-year courses if they fail to reach their targets on three and four-year courses.

The move, announced by the department in a letter to all colleges, is an attempt to meet the recruitment difficulties being experienced by some colleges and polytechnics as the standards of entry to teacher training are raised.

It is controversial because of the anxiety among teacher educators that the proportion of those on one-year postgraduate certificate of education courses should not rise further until more is known about the comparative merits of different types of training.

The letter says that the Secretary of State has decided against any further significant shift in balance between the output from three and four-year courses and one-year courses.

However, to help those institutions which experience temporary difficulties in recruitment to either type of course, she is prepared to permit variations in numbers on different courses.

Inquiries by *The Times* this week show that these difficulties are real. By 1980 all entrants to teacher training will need two A levels and the equivalent of maths and English O level.

Last year only 57.4 per cent of current two A levels, Miss Beryl Sawyer, director of the Central Register and Clearing House, said that she hoped the figure would be 65 per cent this year, though this might be optimistic.

Recruitment at colleges varies. While Bath College of Higher Education has filled all its places with two-A-level students and Charlotte Mason, Ambleside, is to demand three next year, some of the polytechnics are in more difficulty. At Newcastle Polytechnic this year's quota was 155, the number recruited 132 and the number of these with two A levels 76. On the other hand, only about 60 per cent of the 76 had mathematics O level. At Trent Polytechnic with 200 places, 134 have two A levels but only 105 of these have both English and maths O level. At Leicester Polytechnic 57 of the 105 students accepted have two or more A levels. At Leeds the figure is 120 out of 180, though not all of the 120 have mathematics O level.

Mr Malcolm Lee, chairman of the National Association for Teachers in Further and Higher Education's teacher education committee, said colleges must not go back on the view that standards of entry to the schools needed to be made aware of the new regulations.

"If no one can see that, by the time these regulations come into force some courses will cease to be viable," he said.

Internal differences over theoretical and administrative issues have been agreed largely by the Staff, believe the university's support for the more educational approach to these matters, as expressed by the professor and head of department, Mr Ian S.

of the national body the local associations would be jeopardizing the entire package of recommendations. This would enable other groups, particularly polytechnic directors to renew their call for a total end to local control of polytechnics.

The local authority associations' position is also complicated by differences of opinion internally. In the ACC, education leaders are not confident that their own associations' executive committee will endorse legislation on Oakes. Meanwhile local government officers are to have meetings with DES to discuss details of the education legislation planned for the new parliamentary session. Apart from the Oakes provisions, Mrs Williams' Bill, which sets up a new education maintenance allowance for the 16-18 age group,



An exhibition is being held at the Consort Gallery, Imperial College, London to illustrate the college's expansion. These photographs from the college archives show Queen's Tower as it is today (right) and as it was in April 1956 as part of the remains of the Imperial Institute.

Dispute over staff numbers may become a test case

A dispute at Nottingham University as to whether the Association of University Teachers has a right to negotiate the question of staff recruitment may become a test case.

The Nottingham AUT has claimed at the joint consultative committee with the university that recruitment or non-recruitment of staff and the general question of workload comes under the heading of conditions of service and as such they have a right to discuss the matter.

They are worried about the deterioration of establishment figures between 1974 and 1977 and the number of posts which have been frozen, a situation highlighted during the recent pay campaign. The university is adamant that the AUT claims are procedurally out of order and the subject is closed. Mr Alfred Plumb, registrar, said: "The point at issue is the procedure agreement which the local AUT has with the university which specifies subjects which may not be negotiated. The procedure agreement states that decisions of the university relating to academic matters taken in accordance with the statutes and ordinances are excluded from negotiation."

Planning course dropped

by Douglas Morrison

One of only three MSc degrees in town and environmental planning in Scotland has been closed after several years of internal strife. The immediate cause for closing the course, run jointly by Heriot Watt University and Edinburgh College of Art, is withdrawal of recognition by the Royal Town Planning Institute and the Social Science Research Council because they were dissatisfied with elements in it.

Internal differences over theoretical and administrative issues have been agreed largely by the Staff, believe the university's support for the more educational approach to these matters, as expressed by the professor and head of department, Mr Ian S.

Redundant workers' course gets £10,000

A unique educational programme for redundant workers at Bradford College has received £10,000 from the company involved in closure. And Mrs Shirley Williams, Secretary of State for Education and Science, has made a personal request to be kept informed of developments on the course.

The Life-Off scheme at Bradford was launched as a summer school to introduce some of the 2,200 redundant workers from Thorn Computer Electronics to the education system. Background, page 8.

The right, the left and the downright ugly...



Government may fail to meet student targets, says report

by Peter David

Unpublished details of student numbers produced within the Department of Education and Science fall far short of the Government's target to reach its target of 500,000 students in higher education by 1981.

But Labour manifesto pledges increase in numbers

by Judith Judd

Labour Party's manifesto for next election will include a pledge to increase the numbers in higher education and to introduce part-time courses in universities.

These courses will be aimed particularly at those adults who have not come into contact with education after leaving school—for example, women, ethnic minorities and the socially disadvantaged.

One way of attracting such people into higher education, says the document, will be by stepping up the number of part-time courses in universities and by providing them with financial incentives.

"This Labour Government has considerably increased the number of part-time courses in universities and colleges. We will continue to extend this policy and give increasing support to adult attendance on non-advanced courses—part-time as well as full-time."

Labour's policy is for "an integrated comprehensive system of post-school education". The committee, the national body for higher and further education to be set up under the Oakes report as a step in this direction since "it will coordinate closely with the universities in planning higher education as a whole."

The importance of grade union education is also mentioned. The Labour Government will give more money to colleges which take up the challenge of greater industrial democracy.

plausibility of the Government's current assumption that the number of students on full-time and sandwich courses of higher education will reach 500,000 in 1981-82.

The target of 500,000 students, with 100,000 in universities and 200,000 in the public sector, was set out in the last conference White Paper, *Countdown*. It reflected a downward revision of earlier targets which assumed faster growth in demand for higher education.

But even the revised estimates appear now to be higher than the actual take-up of places. Calculations by the DES show enrolment in polytechnic and colleges running some 2,000 below expectations in 1977.

Universities are having less difficulty in attracting students and projected for later years have had to be reduced.

The failure of recruitment in the public sector, particularly if it indicates slowness in the general demand for higher education, will also have a big effect on the universities. The DES is to meet the University Grants Committee and the local authority associations to review all its forecasts of student numbers up to 1983.

If universities are having less difficulty in attracting students and projected for later years have had to be reduced.

The failure of recruitment in the public sector, particularly if it indicates slowness in the general demand for higher education, will also have a big effect on the universities. The DES is to meet the University Grants Committee and the local authority associations to review all its forecasts of student numbers up to 1983.

If universities are having less difficulty in attracting students and projected for later years have had to be reduced.

The failure of recruitment in the public sector, particularly if it indicates slowness in the general demand for higher education, will also have a big effect on the universities. The DES is to meet the University Grants Committee and the local authority associations to review all its forecasts of student numbers up to 1983.

If universities are having less difficulty in attracting students and projected for later years have had to be reduced.

Professor accuses SSRC of interference

One of Britain's leading professors of sociology has accused the Social Science Research Council of excessive academic and administrative interference in the work of its own research units.

Warwick University's Professor John Rex made the charge last week when he declined the offer of a post as director of the council's ethnic relations research unit. He said: "I was unable to accept the appointment because in my view the SSRC units appeared to be over-administered financially, academically and administratively. I believe it may be increasingly difficult to find academics willing to work in this kind of context."

Professor Rex's decision throws further doubt over the future of the unit, which is currently based at Aston University but would have moved to Aston if he had accepted the job. A confidential review by the council last year raised criticism of the unit's management and work. The council agreed to conduct a support only if a suitable director could be found to replace the part-time director, Professor Michael Banton, who wished to return to his work at Bristol University.

But Professor Rex has also brought to a head considerable disquiet within some other SSRC units about the extent of interference from the council's headquarters in London. Professor Banton said this week that the academics associated with the SSRC had less experience in managing research units than their counterparts in other research councils.

He said: "I believe the academics involved in the SSRC at headquarters tend to be impatient in what they want in the way of results. They are more inclined to interfere and get very close to the work than is the case in fields where there are better established research councils."

Contents

European University



David Margolick argues that all is not well in the academic community of the European University Institute, 11

Town and gown

Ngalo Crequer describes the mixture of town and gown which forms Manchester University, 8 & 9

Daniel Boorstin

David Walker interviews the librarian of the United States Congress who is both an intellectual leader and keeper of books, 7

Rent-a-don

A. T. Kuhn suggests that, instead of sabbatical leave, dons might be rented to industry, 13

In a twist

Let us all be professors, says Ninian Smart in his series on concepts in a twist, 12

Martin Heidegger

Anthony Manser reviews two books on the German philosopher, 14

North American news

Overseas news	6
Books	14-19
Noticeboard	20
Don's diary	30
Letters	29, 31

Court threat over two-tier rents

By David Johnson

The Department of Education has been threatened with legal action if it does not act soon to end higher rents for overseas students in self-catering accommodation.

The warning from the National Union of Students arises from concern that overseas students are being deterred from applying for self-catering accommodation at polytechnics and colleges because they cannot afford rents which may be up to three times higher than those charged to home students for identical properties.

Overseas students have enough problems without having to face additional unnecessary barriers, said the NUS president, Mr Trevor Phillips.

This week the DES said that guidance would be issued to education authorities within the next three weeks. It had already indicated that fresh guidance might be given after the legality of charging overseas students more was questioned by Liverpool Polytechnic earlier this year.

In the meantime, the uncertainty caused by DES advice to Liverpool to stop charging differential rents has led to glaring anomalies. In at least two cases known to THE TIMES, a polytechnic has suspended the two-tier rent system while a near neighbour has continued to charge overseas students more.

The NUS is angry that there has not been earlier Government action to ensure that all polytechnics and colleges fall into line with the DES

advice in Liverpool. It has already protested to Mr Gordon Oakes, Minister of State for Education, and has drawn up lists of institutions which are following DES advice and those which are not.

Our patience with the DES is wearing thin, Mr Phillips said. "The department is allowing injustice and humiliation to be heaped upon overseas students by renegade authorities."

The situation is doubly unjust because these regulations have never applied for the universities or for local authorities in Scotland.

Mr Phillips has written to Mr David Lane, chairman of the Commission for Racial Equality, explaining the problem and asking assistance with the legal proceedings if they are needed.

Dissenting dons under the microscope

By Ngao Crequer

A history of a group of "dissenting academics" at Lancaster University has been produced by a sociology lecturer at the university.

Dr Chris Oiley has made a study of the Association of Scientific, Technical and Managerial Staffs Academic Group between 1971-78, both to make a scholarly evaluation of a staff minority group and to encourage people to join.

He says that in 1971 academics were organized as a constituent branch of ASTMS and these consisted mainly of junior lecturers. "Politically the group has embraced sect Marxists at one pole to liberals and social democrats at the other, but the temper of the group has been established mainly by libertarian socialists."

Their common tendency has been to see university in "us" and "them" terms (the latter being heads of departments, professorial staff, and administrators) and a view that the management of the university is in the hands of a few. The group has also exhibited varying degrees of respect for the Association of University Teachers, a belief in traditional trade union organization and a commitment towards democratic university government.

According to the history the group's activities helped to make possible the "reconstitution" of the English department at a school after the "purge" of 1972. Dr Oiley also claims that the group was successful in five of the seven major individual cases it handled.

The group has been very concerned with staff conditions and over the years has challenged the university on probation and security measures. It has argued that university measures gave management new coercive and punitive powers which were often so vague they could be used to justify attacks on staff, based on personality criteria.

But the future of the academic group is bleak. Members have been lost to the AUT and nationally ASTMS academics are in decline. But "one must never underestimate the peculiar genius of local management for campus confrontationism (and the AUT's persistent endorsement of the same)". This and the AUT's impotence and conservatism, says Dr Oiley, guarantees a long life for Lancaster's dissenting academics.

Dissenting Academics - An Outline History of the ASTMS Academic Group, at Lancaster University, 1971-78, by Chris Oiley, department of sociology, published by the group.



Mr George Seabrooke, director of Wolverhampton Polytechnic (left) shakes hands with Mr David Fear, managing director of PRIME Computers (UK) Ltd, after signing an order for a £500,000 computer installation. Councillor A. Storer, chairman of the polytechnic governing council, looks on.

Medical body needed to boost science's role in treatment

By Robin McKie

Improvements are urgently needed in the application of new scientific discoveries in the treatment of disease. This warning was given by Professor Colin Dollery, of the Royal College of Physicians at the Royal College of Physicians at this week when he called for an appropriate board at the Medical Research Council to supervise the job.

But such a board will have to be willing to take an initiative and not simply respond to outside requests, Professor Dollery added. The problem was due to the reluctance of the best scientists to become involved in the grinding grind of long-term therapeutic trials once a new drug had been discovered. "Unless there is a single breakthrough, it can be very difficult to decide the appropriate moment to initiate such a trial. It is no one's clear responsibility to do so."

And Professor Dollery also gave warning that there was little use in governments or research councils attempting basic therapeutic breakthroughs, such as attempts to conquer cancer or strokes. The relative failure of expensive programmes on these lines in the United States illustrated this, he said.

"Peer review and the support of medical research are essential in the application of new scientific discoveries in medical science," he added.

"Useful therapeutic discoveries usually originate from a combination of intellectual insight, aided by chance, upon a diverse background of scientific knowledge. It is this

integration of apparently unrelated bits of knowledge with new ideas and techniques that makes the direction of discoveries in medical science so unpredictable."

The background may include the clinical and biochemical description of a disease entity, detailed knowledge of the disease mechanism, and an observation, perhaps in a distant field, which offers an opportunity of manipulating it.

Professor Dollery, who was giving the Back Carling Memorial Lecture, said it was in the interests of all those involved in medical science to see that a high standard was maintained from the point of discovery to the point of general application in health care.

Although we had reached the end of an age of optimism which soon develop cures to all diseases and complaints, there was no reason for not having great hopes for the future. Recent discoveries in the control of pain, clotting, and immunity, all pointed the way to dramatic future advances.

"The framework in which these advances are exploited will be a more difficult one in the future than in the past. We must ensure that an age of optimism is not replaced by one of despair due to lack of resources."

Dr Oiley said that the return of medical science to the forefront of intellectual insight, aided by chance, upon a diverse background of scientific knowledge. It is this

Talks start soon on CSE and O level merger

By Maggie Richards

Higher and further education representatives will be expected to play a major part in formulating procedures for the introduction of the new General Certificate of Secondary Education, tentatively scheduled for 1985.

The White Paper proposals for a new single examination system at 16 plus, published this week, suggest a new seven-grade scheme to replace the existing GCE and CSE examinations.

Amalgamation of the various GCE and CSE examination boards into four authorities for England, and one for Wales, is recommended. But it is emphasized that schools would retain the freedom to choose their boards and structure of the five new bodies would be carried out in such a way that A level work would not be disrupted.

Explaining the Government's reasons for wanting to dispense with the present system, the White Paper says its two components do not match any natural division of abilities or aptitudes among children. It also claims to be confusing to employers and the public.

It is proposed to establish a new coordinating body to oversee the introduction of the new exam and monitor progress. Universities and colleges will be invited to take part in discussions about its inception.

In setting up the new central organization, the Government does not intend to impose any national restrictions on the examination system, but it feels such a body will reassure the public that standards are being maintained.

"Public confidence in comparability and standards will be reinforced by the knowledge that all groups of boards are applying the same criteria, agreed with a central committee, to all their syllabuses and assessment and examination procedures," says the White Paper.

At examining board level, no one body should, by virtue of its size, dominate the remainder. In drawing up the proposals for the constitution of the boards, it will be necessary to bear in mind existing A level work and the continued use of university property for examination purposes, the White Paper adds.

A senior body will be responsible for overseeing the work of each board, and membership will consist of university and public sector higher education representatives, further education members, teachers, local education authority officials, employers, trade unionists and parents. No one group will have a majority, and jointly with the Department of Education and Science, the White Paper will be maintained through the appointment of assessors.

At examining board level, no one body should, by virtue of its size, dominate the remainder. In drawing up the proposals for the constitution of the boards, it will be necessary to bear in mind existing A level work and the continued use of university property for examination purposes, the White Paper adds.

A senior body will be responsible for overseeing the work of each board, and membership will consist of university and public sector higher education representatives, further education members, teachers, local education authority officials, employers, trade unionists and parents. No one group will have a majority, and jointly with the Department of Education and Science, the White Paper will be maintained through the appointment of assessors.

Results from the previous examination year, December, which only 15 per cent of students passed (460 out of 3,034), have already led to vociferous arguments from the ACASS that the Institute's high examination standards are not being supported by an equivalent comprehensive education and training policy.

In an unprecedented move this week, Ms Frances Harper, the ACASS president, has urged students who believe they should have passed the exam not to remain silent but to complain to the Institute.

"Ask for an explanation of your failure, particularly one giving the main reasons which contributed to it. Demand that the addition of your marks be rechecked to ensure that you have not failed because of a clerical error," Ms Harper writes. She points out that many tutors are reluctant to feel that students should have passed, so that complaints will not go unheeded, and she advises students to seek their support and ask them to approach the institute on their behalf.

The new exam will broadly cover for the range of conditions taking the present GCE and CSE papers. But recognizing the wide ability range to be covered, in some subjects the new system will provide a variety of papers and tests set at different levels.

At present, says the White Paper, schools are forced to make decisions at an unduly early stage about which examination syllabus should be followed. Arbitrary syllabus variations between O level and CSE in some subjects also make it difficult for schools to use their teaching resources to the best advantage.

With the new examination, pupils preparing for alternative papers in the same subject could be taught together for at least part of the time, and decisions about individual examination needs taken later.

The White Paper suggests discussions between the DES and the existing GCE and CSE boards should begin shortly. Boards will be invited to draw up proposals on the basis of negotiations between themselves. In Wales, the Welsh Office will conduct talks with the Welsh Joint Education Committee.

Outline proposals for the new boards should be ready by July next year, and the Government hopes the central body will be in operation by the end of 1979.

The new syllabuses might be introduced in 1983, leading to award of first GCSEs in 1985, but an final date for the introduction of the system will be set only after the examining boards and central body have been set up.

Approval for the Government proposals came this week from the Association of County Councils, which expected introduction of the system to lead to "much needed improvements". The scheme was also welcomed by the Schools Council.

But Mr Norman St John Stern, Conservative spokesman on education, referred to the proposals as "disappointing and disturbing". At a time when there were widespread parental fears about falling standards, the Government intended to abolish two tested systems, he said. The proposals failed to provide two vital reassurances - on maintenance of academic standards and continuation of public confidence in the examination system.

Due to an industrial dispute the White Paper is not available. An explanatory leaflet for parents and teachers has been produced by the DES. Free copies are available from Room 7/11, Department of Education and Science, Ellenborough House, York Road, London SE1 7PH.

Protest over exam debacle

A war of attrition against the Institute of Chartered Accountants' handling of examinations is being launched by the Association of Chartered Accountant Students. Societies because of the latest poor results in the ICA final professional examination. Only 1,036 students out of 4,166 passed.

Results from the previous examination year, December, which only 15 per cent of students passed (460 out of 3,034), have already led to vociferous arguments from the ACASS that the Institute's high examination standards are not being supported by an equivalent comprehensive education and training policy.

In an unprecedented move this week, Ms Frances Harper, the ACASS president, has urged students who believe they should have passed the exam not to remain silent but to complain to the Institute.

"Ask for an explanation of your failure, particularly one giving the main reasons which contributed to it. Demand that the addition of your marks be rechecked to ensure that you have not failed because of a clerical error," Ms Harper writes. She points out that many tutors are reluctant to feel that students should have passed, so that complaints will not go unheeded, and she advises students to seek their support and ask them to approach the institute on their behalf.

Premier to present awards

The Prime Minister, Mr Callaghan, is to present awards to the Engineering Industry Training Board's first fellows in manufacturing management. At a ceremony on Monday, he will give each of the 15 professional engineers a specially struck silver medalion to commemorate the event.

The fellows have just completed a concentrated programme of training which began in March 1976. After six months at Cranfield Institute of Technology, each undertook management projects which lasted a year at an engineering works. Fifteen candidates have won round of the fellowship programme and a third round is to be started soon.

The scheme was launched to boost numbers of engineering graduates entering management - rather than the usual fields of research, development or design.

THESIS BINDING
High quality binding to your own specification. From 25 p.p.v.
Call or phone
F. J. Bennett and Co. Ltd.,
Rushmore Road, E. Acton,
Tel.: 01-882 3905

Leading space research station to be closed

By Robin McKie

One of the country's leading research stations, the Appleton Radio Science Research Council, is to be closed down. The move, which will be completed by the end of May, was agreed in principle last week.

A working party had been in the Appleton Laboratory and had recommended that the council should shut down the station. Now the Appleton's move will be required to move the station to the Rutherford Laboratory.

It is intended that the work now done at Appleton, which concentrates mainly on space research, will be progressively transferred to the Rutherford Laboratory over the next few years to cause minimum disruption to research programmes.

Although the council regrets the move, it says it is necessary. The move will cause, we hope the majority of staff at Appleton will be willing to transfer, mostly to Rutherford, with their work, an official said.

Professor Geoffrey Allen, chairman of the SRC, said the move will allow existing research capa-

bilities to be stretched further as facilities were presently duplicated at both sites.

We hope that the names of Appleton and Rutherford will still be used in connection with the new collective laboratory, he added. The expectation is that there will be a major programme in the radio communications area and a major programme in space science at the new site.

Professor Allen said the decision by council had been clear cut and had followed an extremely good debate on the issue. It was not thought that the move would lead to loss of identity among research teams presently operating at the laboratory.

The Appleton Laboratory began in 1921 as a few huts set up as a centre designed for radio research. It later began research into the ionosphere and was closely associated with the scientist Sir Edward Appleton, discoverer of the atmospheric belt, the Appleton layer, and after whom the laboratory was named.

The centre was also involved in pioneering work into the development of radar and in the later 1950s became involved in space projects and research. The last all-British scientific satellite, Ariel 5, launched in 1974, is being controlled from the laboratory.

Top engineering students offered £500 awards

Imperial College, London, however, for 1979-80 they will apply to any engineering course at a university, college, or polytechnic in Britain.

Mr Hahn admitted that this year's approach had done little to encourage students to enter industry. Those who had applied for scholarships had already been committed to industrial careers and the £500 award was merely an extra bonus.

The selection was badly done. It was restricted to the six national universities, courses, which were the best of the best, which is not the idea of the scheme.

Mr Gordon Oakes, Minister of Education, said that the scholarships would lead to increasing interest in schools to get pupils to take up industrial careers rather than enter academic life. The scheme was part of the Government's strategy for ensuring that the country's manufacturing industry would become vigorous, strong and effective, he said.

So far, 31 industrial concerns from the public and private sector have contributed £97,000 towards the scheme and the Government has pledged a similar sum. The money will be used to make up the grants which will be awarded free of tax and in addition to any local government student grant.

Oxford may boost graduate titles

Students of Oxford University are expected to take part in the first time in debate on November 7.

The move will be whether to replace the degrees of Bachelor of Philosophy and Bachelor of Letters with a Master of Letters and a Master of Philosophy. There would be exceptions.

Members of the university which includes graduate students, but not to vote, at meetings after a postal vote. The result would be a postal vote. The result would be a postal vote.

A visiting party from the Council of National Academic Awards last week extended the period of validity for the BSc sociology degree to the full five years, having previously granted only limited approval.

But a question mark still hangs over the future of the department, which recruited only 26 first-year students in 1977.

Mr Noel Parry, head of sociology, and Miss Jean Snelling, head of applied social studies, have been using teaching and research staff in the two departments to discuss the future of the department and possibly set up a working party to undertake detailed planning. Smaller groups are to meet next week to prepare proposals.

AUT approves genetic experiments

Cautious approval of future genetic experiments has been given by the Association of University Teachers - provided proper safety precautions and public accountability are maintained.

In a report published this week, the AUT, which represents 30,000 university teachers and researchers, states that the benefits of genetic manipulation outweigh any conceivable hazards and every encouragement should be given to this work because of its enormous potential in improving man's welfare.

University teachers involved in this work are sensitive to safety aspects because they are in the position of both employers and employees and are therefore concerned with the safety of their colleagues, non-academic staff and the general public, the report says.

And the AUT urges that funds should be set aside for properly equipped laboratories and for the appointment of properly trained staff. This would ensure that universities could provide postgraduate training for future scientists needed for basic research and the application of genetic engineering techniques in medicine, agriculture and industry.

In this way, the social equation of benefit versus hazard can be pushed even further in the direction of benefit and the general public can be reassured that adequate safety precautions have been observed, it adds.

The AUT sees two particular areas of hazard. First, infections might be caused by new bacteria normally used to treat the disease. Bacteria might also acquire toxin genes which they do not normally possess.

Secondly, danger could be caused by introducing genes from cancer cells or viruses into bacteria which could survive in man.

In fact, no hazards have yet come to light in spite of active research and the most dangerous viruses and bacteria continue to be those which have been exposed to natural selection over the centuries rather than those which have been engineered by man, the report adds. "However, dangers may still exist and it is prudent to maintain a flexible attitude to safety to minimize the risks."

The AUT view on genetic engineering compares with the slightly less favourable view of the Association of Scientific, Technical and Managerial Staffs which is more concerned about safety measures at laboratories. ASTMS has also called for greater public debate about the issues associated with genetic engineering and has organized a one-day conference which was being held today at the Pharmaceutical Society headquarters in Lambeth High Street, London.

Student slump threatens poly sociology course

by John O'Leary

Falling student numbers at North London Polytechnic's sociology department have prompted talks on the possibility of a merger with another department. The sociology department has been called for next month, although there is said to be no question of a closure at present.

A visiting party from the Council of National Academic Awards last week extended the period of validity for the BSc sociology degree to the full five years, having previously granted only limited approval.

But a question mark still hangs over the future of the department, which recruited only 26 first-year students in 1977.

Mr Noel Parry, head of sociology, and Miss Jean Snelling, head of applied social studies, have been using teaching and research staff in the two departments to discuss the future of the department and possibly set up a working party to undertake detailed planning. Smaller groups are to meet next week to prepare proposals.



Christian Schadt's self-portrait is from Neue Sachlichkeit and German Realism of the Twenties, an exhibition which opens at the Hayward Gallery on the South Bank on November 11.

Colleges urged to stimulate teachers' sagging morale

by Patricia Santinelli

The morale of the teaching profession could be stimulated and boosted by an annual staff development audit, Mr George Talley, principal of Sheffield Polytechnic, said last week.

Speaking at the National Association of Staff Development's annual conference in Manchester, Mr Talley said that the audit could be carried out by colleges through the academic board and governing body.

By this I don't mean merely a list of courses attended by staff, but a real assessment of what is going on. Then we can take the next step of claiming at least 5 per cent of the staffing budget for staff development and decide exactly how to use it," he said.

Principals should also have to give regular account of their stewardship in staff development to the staff themselves.

The next step to provide incentives for teachers could be assessment of teaching by peers and through means of self-assessment. "Until we are further forward in our willingness to recognize that teaching must be assessed and can be assessed, we are bound to have staff development programmes that are Hamlet without the prince," said Mr Talley.

Yet another step was interchange of jobs which would provide for changes in environment to keep teachers fresh.

Another possible source of incentives was the better use of existing resources. By cutting back in some areas, enough funds could be found for staff travel and interchange which would make a world of difference to morale.

"I don't want grandiose national or regional committees staff development," he said. "But I would like to see the national experience of people getting together more frequently to share that experience and to work on better ways of keeping fresh, of maintaining and improving job satisfaction, and contributing to more effective staff development."

The lack of opportunity for promotion was not the over-riding factor affecting staff motivation, said Mr Talley, but three factors were causing difficulties. For example, decisions on curriculum were being pushed down to the college and the teacher; there was a growing difficulty in defining the client or student; and there was an increasing requirement to do more and better with the same or with less.

"Since our business is teaching, rather than question what can replace promotion as an incentive we should question whether we have done and are doing an effective teaching job," Mr Talley said. Although he was convinced of the need to train teachers, he was not convinced that the current structure of initial teacher training was right.

Librarian appeals

A librarian at the Ulster Polytechnic has resigned and has started legal proceedings alleging constructive dismissal.

Mr M. R. Jain, a £7,572 a year sub-librarian at the polytechnic in Jordanstown, County Antrim, is not satisfied with the outcome of two internal hearings which considered his grievances.

The case is expected to come before an industrial tribunal in Belfast in mid-December and may last several days.

Property course

The British Property Federation is to make a three-year grant to Reading University to establish a new post called the British Property Federation Visiting Fellowship in Development. The first fellow will be appointed in October, 1978, and the federation's initial grant will be £3,000 per annum.

The post will involve the teaching of the practical aspects of development with the emphasis on the understanding of the problems and skills of the developer's role.

DO YOU WANT TO DEVELOP RESEARCH SKILLS IN A MANAGEMENT SUBJECT?

The Association of Teachers of Management in conjunction with the SSR is running a programme for the development of basic research skills in areas relevant to management and management education.

The programme runs over 12 months (from January 1979) and involves two residential one-week workshops at the London Business School, one two-day follow-up event and the carrying out of a research project on a topic of the participant's choice. The programme is open to all teachers of management in the UK. The cost of the programme is £100. A nominal fee of only £70 is charged to cover material and accommodation costs. Further details and application forms are available from A.T.M., based at the Polytechnic of Central London, 26 Marylebone Road, London NW1 5LS. Tel: 01-486 8811, ext. 239.

Researchers may join forces

by Robin McKie
Plans are being prepared to set up an association to campaign for improved rights for Britain's researchers. This new group would press for better contracts and redundancy payments for research workers and would operate in conjunction with the researchers' associations recently established inside certain disciplines.

Detailed proposals for a general association of researchers are to be prepared by the Library and Information Research Group following the group's recent meeting with the Association of Researchers in Medical Science. Both bodies have been set up in the past year because of growing concern that high-quality researchers were leaving work in their fields because of

poor job security. The researchers are particularly concerned that researchers in short-term contracts are now being asked to sign away their rights to redundancy pay. They want an assurance from the various research councils that some form of redundancy payment will be made to scientists whose contracts are not renewed, and they are also pressing for researchers to be given similar employment rights as permanent staff at a university or college.

Much of this recent problem has been caused by financial cutbacks in higher education. There are no longer available staff positions at universities for researchers to move into and decreasing funds have also meant fewer research projects.

The proposed researchers' association would try to establish the common problems among the different research fields and attempt to put them right. Mrs. Christine Bick, a co-ordinator of IRLG, "However, we will not be aiming at abolishing but will put disciplinary documents before universities and employers to get something done," she said.

The Library and Information Research Group was probably the first body to start organizing a general researchers' association, she believed, because its various members had strong contacts with many other disciplines. In particular, they were anxious to establish some form of organization in the social sciences where they knew of no comparable group.

Literacy telephone service to be extended

by Maggie Richards

The telephone referral service which helped put the adult literacy campaign on the map is to be expanded. The service, originally established in 1976 as a link between the BBC's *On The Move* television series and the literacy project, has introduced some 50,000 students and about 20,000 volunteer tutors to the campaign.

Now it is to widen its activities and become involved in a whole range of basic education programmes—including collaborative ventures with independent television companies.

The first of these efforts begins tomorrow when the *Make It Count* series produced by Yorkshire Television is repeated, accompanied this time by the offer of help from the referral service viewers in touch with local agencies.

Coinciding with the start of co-operative ventures with independent television companies, Mr. Kim Taylor, head of the Independent Broadcasting Authority's educational broadcasting service, is to become a director of the Adult Literacy Support Services Fund, the limited company which administers the service.

Already the service has been working closely with independent radio and television stations on literacy public and Lady Evelyn, chairman of the IBA, has been a member of the support services fund since its inception.

Coverage of the literacy campaign has involved the service in support functions, apart from the referral system. A pen-friend scheme has been set up, enabling more than 200 literacy students to practice their new-found skills. Students of the service are also being encouraged by means of a questionnaire to take part in a range of educational activities, with a particular emphasis on use of the media. There is also a special range of educational materials on literacy tuition.

The telephone system itself operated from four regional centres: London, Glasgow, Cardiff and Birmingham. About one-third of the total number of inquiries about the literacy scheme have come through the referral service.

But not all calls have been concerned with literacy tuition. Some have reflected concern with other aspects of adult education, and some have come from parents anxious about their children's learning problems.

Five per cent of calls within the area covered by the London regional office have come from people wanting to help with English as a second language. Now new links are being established with organizations involved in providing this type of tuition throughout the country.

The support services fund has been financed from the beginning by the BBC, the IBA, and other organizations have contributed.

Arguments that 'look rather quaint'

by Ngao Creguer

Bridging the Gulf, rather than Tunneling the Peak will be the problem of higher education in the 1990s and 2000s, according to Sir Charles Carter, vice-chancellor of Lancaster University.

Sir Charles gives his views on the Department of Education and Science discussion paper in a *Higher Education Bulletin* published by the Institute for Post-Compulsory Education at the University of Lancaster.

He says it is, as likely, family size stabilises, then the birth-rate will probably rise substantially, as it did 25 years ago. He says that this makes the DES arguments in the discussion document "look rather quaint". "On their central projection (which makes some assumptions about graduate and overseas students which are rather low) the variations in total student numbers between 1981-82 and 1992-93 are perfectly capable of being accounted for by the elasticity of the higher education system."

The Peak, through which we are invited to Tunnel, proves to be a flat-topped mountain whose summit is only 40,000 (7 per cent) above the levels at the two sides. He says that what looks worrying is an apparent peak starting in 1992 with the loss of a further 40,000 students in three years.

But in prospect, looking in about 1998, will be a large increase in the 18-year-old age group which will go on until at least 2007. Between 1995-98 the 18-year-old age group will be fairly constant. Sir Charles predicts a discussion document at the end of this year which will draw attention to an awesome cliff which has to be climbed.

"What all this suggests to me is that the DES is engaging in the very best of civil engineering. Tunneling the Peak is hardly surprising. Bridging the Gulf is a much more serious problem, and yet surely, no one in 1992 will contemplate dispersing resources which will be needed again before the decade is out."

In the same bulletin staff at the Institute and at the department of educational research of the university examine the concentration on numbers in the DES discussion document, the policy alternatives offered and the general issues involved in planning for the 1990s.

Higher Education Bulletin, a special issue on the DES/SED discussion document, "Higher Education in the 1990s", published by the Institute for Post-Compulsory Education, University of Lancaster.

OU students to visit Egyptian tomb
Open University student Mr. John Carter is to get the chance to visit the tomb of Tutankhamun—first discovered by his great uncle, Howard Carter half a century ago. Mr. Carter, is one of 12 under-graduates—six of them from the OU—to have won travel scholarships awarded by the Egyptian government.

The two-week scholarships were offered in a competition for all British undergraduates organized by the Egyptian Embassy. Mr. Carter, 25-year-old engineer from Croydon, Surrey, won his place with an essay entitled, "Tutankhamun Twice Illustrated."

Professor warns of four areas where change is vital

by Patricia Santinelli

Unless higher education changed, the rest of post-secondary education would always remain second best, Professor Lewis Elton of Surrey University's Institute of Educational Technology warned at the inter-nay 78 conference this week.

He stressed that there were four areas in which changes were necessary: the training of teachers in higher education—to show that learning and not teaching mattered; the breakdown of the wall between intra and extra-mural education; the unification of initial and continuing education and action research in education.

Discussing the relevance of alternative learning systems to higher education, in relation to the paper "Higher Education into the 1990s", Professor Elton said that if the proposed Model B was to become possible, greater flexibility would be needed.

This would affect credit systems in courses and credit transfer schemes between institutions, the individualization of learning, the creation of independent learning materials and of resource centres, advice and counselling.

In turn this would require pre and in-service training of teachers in higher education, the training of trainers of these teachers and training researchers in action research methods.

Earlier Mr. John Coffey, acting consultant in open learning systems for the Council of Educational Technology had identified the constraints on educational opportunities existing in our post-school education system which could be removed by the introduction of alternative learning systems.

Among these were the administrative constraints on educational systems which, for example, tended to negate the chances of the adult in a full-time job wishing to re-train, but finding difficulties not

only with the fees but fitting in with an established schedule of courses. Mr. Coffey pointed out that an open learning system could offer minimal restrictions on time or place of study. It could remove the need for group size requirements, using resources in centres and individualized learning packages. This kind of system could enable financially disadvantaged people to take part through means of education, paid leave and ensure the transfer of credit and credits.

"I do not believe that there will be an immediate adoption of this kind of system because it is so difficult at present to absorb in an education system, but I feel strongly that we should move towards it," he said.

There were also problems as to which solutions must be found before an open learning system could be set up. For example, there was relatively little knowledge of what kind of students were entering higher education and what their needs were. Moreover the necessary information networks for such a system did not exist, and we should look at the use of teletext to establish these.

The system would also require every teacher to acquire both course design skills and counselling techniques. More research into its cost effectiveness was also required, only a serious evaluation would establish whether it was cheaper and more or equally effective as other methods.

Describing the growth of the self-financing alternative learning system that is being introduced into further and adult education colleges and institutes, Mr. Harry Sacks, one of Barnet's City Hays, said that by next year some 1,500 to 2,000 students, mainly, though not exclusively, adults might be studying for their O and A levels through this method.

English 'is being debased'

Cultural and educational exchanges in the European Community are taking place between a cultural elite, Mrs. Williams, Secretary of State for Education, said this week at a public discussion on cultural relations, partnership and policy, held at the Goethe Institut in London.

Speaking on the Institut's 20th anniversary, Mrs. Williams pointed out that the answer to money and exchange lay in education. We needed not to start at the higher education level, but

much earlier, in the schools, with six-year-old children. Only in this way would we be able to instill a sense of community, she said. Another aspect which she said nothing to strengthen our cultural relations was the debasement of the English language. It was being learned by many people from other countries out of context of culture and commerce. For this reason, she said, the language should be taught in a more practical way, with an exchange for computers, which basic English is not enriched by.

Big cuts urged in doctorate programmes

North American News

by Olive Conkson

WASHINGTON
The number of American universities offering PhD programmes should be reduced to three quarters of the country's leading graduate schools were told at their annual meeting.

Professor Harrison Shull of Indiana University, who is chairman of the National Research Resources Commission, said that the country had 100 first-rate universities and 100 second-rate universities. He urged the United States, more richly and economically than any other country, to do the job of 50.

Institutions should be encouraged to discontinue offering graduate study, first of all, to cut down the number of students and second, to cut down the number of faculty. With such funding in place, rather quick shifts between postdoctoral and predoctoral support can be accomplished.

In an interview afterwards, he said the figure of about 100 national research universities was "politically suitable" as well as being objectively the right number.

Staff must 'renew faith'

by Edward Sheffield

University teachers must renew their faith in higher education and be prepared to defend themselves against forces tending to undermine the profession, says Dr. Donald C. Stange, executive secretary of the American Association of University Teachers, in an article published by the association's *Bulletin*.

As an evidence of loss of faith, he says, "We are fond of saying that the universities oversold the general public on the immediate returns of a university degree in the post-World War II era, but perhaps the people we really oversold are ourselves."

He argues, though, that university education benefits the country in many ways—providing a better educated citizenry and a protected labour force, for example. He also points out that Canadian academics fail to appreciate "the excellence of the Canadian university system" and that "we need to talk to each other about the work we are doing."

Noting that university administration and government bureaucracy and politicians may tend to exercise their power in ways which are not in the interest of university teaching, he lists four priorities for the profession: strong and effective faculty associations; effective collective bargaining; a firm legal basis as provided for the economic and contractual rights of the academic; and a strong and effective national association of university teachers.

"To ensure that the voice of the university community is heard," he says, "we need to coordinate our efforts, coordinate lobbying activities, to preserve academic freedom through a time of strain and difficulty."

John Lorenz, the association's executive director.

Research libraries awarded first Government grants

The Government has announced the first grants in a new federal scheme to strengthen America's major research libraries. Twenty libraries, mostly at universities, shared \$5m worth of awards.

The biggest grant, \$675,000, goes to the University of California, Berkeley, for a project to be administered jointly with the University of California, Stanford University.

Even the smallest award is worth \$70,000, this is to the University of Illinois.

The programme for Strengthening Research Libraries was authorized by Congress in 1976 but not actually funded until this year. Shortly before adjourning, Congress voted to appropriate \$5m for 1978, although President Carter's budget request had been only for another \$5m.

More than half of this year's grants will be devoted to improving "bibliographical control and access," making collections more accessible to scholars and researchers and encouraging cooperation and resource sharing between libraries.

Most of the remaining money will be spent on the preservation and maintenance of collections, saving some of the millions of volumes that in the process of integration on the shelves and in the stacks. Only \$800,000 is allocated for new acquisitions.

Next year the Association of Research Libraries, which represents about a hundred important libraries, will be invited to the White House to discuss the programme with the President and other senior officials.

This College Library Resource



University of California, Berkeley, receives \$675,000.

The additional funding is needed, he says, to establish a "national network of research libraries" and to encourage the application of new technology to share resources efficiently, the United States Commissioner of Education, Ernest Boyer, has spoken publicly of his enthusiasm for such a national network.

If more Federal money does become available, the libraries will have no trouble spending it. In 1978 the Office of Education was able to support only a fifth of the grant applications received, according to Frank Stevens, who administers the programme for strengthening research libraries.

The Government has also announced 2,508 grants, worth exactly \$3,906 each (\$10m in all), to college and university libraries, under the other Federal support programme for academic libraries. The money is earmarked for the purchase of books, periodicals, documents and audio-visual materials.

This College Library Resource

on the issue in the near future. Professor Shull, who is a chemist, says that local political pressures have led to the establishment of further research universities in other countries, too. He believes it is in the interest of industrialized nations to have roughly one research university for every two million inhabitants.

In Britain, for example, 25 to 30 fully fledged universities would be about right, according to this theory. Any more, and the resources are being stretched too widely.

Addressing the same Association of Graduate Schools meeting, Dr. Frank Press, director of the White House Office of Science and Technology, said President Carter "is embarrassed at how little we do in support of developing countries, compared to most Western nations."

Dr. Press, who recently led a scientific delegation to China, predicted that 500 students from the Soviet Republic will be studying in the United States within a year.

Spending by states maintained

from our correspondent

WASHINGTON
States are still increasing their spending on public higher education at a fairly healthy rate, though no longer at the hectic pace of the late 1960s and early 1970s.

M. M. Chambers, professor of educational administration at Illinois State University, reports that the 50 state legislatures have increased appropriations for higher education by 22 per cent over the past two years. This represents a gain of 7 per cent in constant dollars, after allowing for inflation.

The total for 1978-79 is \$17 billion—up 235 per cent since 1968-69. Professor Chambers, who has been monitoring the states' expenditure on higher education since the 1950s, includes appropriations for the operating expenses of public colleges and universities, and grants and loans to students, including those at private institutions, but he excludes capital expenditure. Overall, actual spending bears a close relationship to these appropriations.

The facts show a clear geographical disparity between the Southern states, where public higher education is growing most rapidly, and the North-East, where in some cases spending is increasing more slowly than inflation. Mississippi and Alabama had the largest two-year growth in appropriations—42 and 30 per cent respectively—and several of their neighbours had increases of more than 30 per cent, according to Professor Chambers.

Mississippi and Alabama now spend more money on higher education, in proportion to personal income, than any other states. In terms of expenditure per local of population, the wealthier pair of Alaska and Hawaii are most generous.

At the other extreme, Tennessee has had by far the worst spending record over the past two years. Its legislature appropriated only 6 per cent more for higher education in 1978-79 than in 1976-77, which translates into a substantial reduction in purchasing power for the state's colleges and universities, with inflation running at an annual rate of 7 or 8 per cent.

However, New Hampshire—a state noted for having an extremely conservative governor and no state income or sales taxes—retains its customary bottom-of-the-table position for per-capita expenditure on higher education. It spends four or five times less per person than the most generous states.

In absolute dollars, California is the biggest spender, with an appropriation of \$2.3 billion for 1978-79. This is up 28 per cent on 1976-77, though Professor Chambers says the increase is inflated by the effects of Proposition 13, which forced the state government to make up some of the local property tax revenue lost by the community colleges.

from other experiments that gas molecules like oxygen and nitrogen, absorbed on to a surface, do move around.

Discovery that metal atoms could move around for the field of microelectronics, Professor Crewe says. For it may set a limit on the computer industry's drive to make its electronic circuitry ever smaller—exceedingly fine silicon would be unstable if their component atoms started wandering around. The Crewe-Isaacson technique could reveal the limits of miniaturization.

A more immediate application is in the industrially vital field of catalysis. Many of today's most important catalysts consist of heavy metals on a carbon base. The Chicago colour films will give new insights into their character and the way they work.

Albert Crewe, the first scientist to take photographs of several different types of atoms on the ultra-thin carbon films (only four or five atoms thick) speaks of the extremely narrow beam of electrons that is fired through the sample.

Since the extent to which the human eye can easily detect differences in brightness in a black-and-white picture is limited to only about 10 shades of grey, the colours greatly increase the clarity of the film and the information available to an experienced viewer, especially when several types of atom are present at the same time.

Professor Crewe, a Yorkshirer who started his scientific career as a lecturer at Liverpool before moving to Chicago in 1955, explains that the greatest problem he and Dr. Isaacson faced when they set out to obtain atomic movies from their scanning transmission electron microscope was to make the equipment totally immobile. Even a movement of a billionth of an inch during the experiment would ruin it. Eventually they managed to insulate the microscope in a high vacuum.

Since obtaining their first colour

Scanner takes 'colour film' of moving atoms

Albert Crewe, the first scientist to take photographs of several different types of atoms on the ultra-thin carbon films (only four or five atoms thick) speaks of the extremely narrow beam of electrons that is fired through the sample.

Since the extent to which the human eye can easily detect differences in brightness in a black-and-white picture is limited to only about 10 shades of grey, the colours greatly increase the clarity of the film and the information available to an experienced viewer, especially when several types of atom are present at the same time.

Professor Crewe, a Yorkshirer who started his scientific career as a lecturer at Liverpool before moving to Chicago in 1955, explains that the greatest problem he and Dr. Isaacson faced when they set out to obtain atomic movies from their scanning transmission electron microscope was to make the equipment totally immobile. Even a movement of a billionth of an inch during the experiment would ruin it. Eventually they managed to insulate the microscope in a high vacuum.

Since obtaining their first colour

Crewe and Isaacson assigned colours to the atoms according to the intensity or "brightness" of their images (which corresponds to the amount they scatter the extremely narrow beam of electrons that is fired through the sample).

Since the extent to which the human eye can easily detect differences in brightness in a black-and-white picture is limited to only about 10 shades of grey, the colours greatly increase the clarity of the film and the information available to an experienced viewer, especially when several types of atom are present at the same time.

Professor Crewe, a Yorkshirer who started his scientific career as a lecturer at Liverpool before moving to Chicago in 1955, explains that the greatest problem he and Dr. Isaacson faced when they set out to obtain atomic movies from their scanning transmission electron microscope was to make the equipment totally immobile. Even a movement of a billionth of an inch during the experiment would ruin it. Eventually they managed to insulate the microscope in a high vacuum.

Since obtaining their first colour

film in August, they have observed the behaviour of several different types of atoms on the ultra-thin carbon films (only four or five atoms thick) speaks of the extremely narrow beam of electrons that is fired through the sample.

Since the extent to which the human eye can easily detect differences in brightness in a black-and-white picture is limited to only about 10 shades of grey, the colours greatly increase the clarity of the film and the information available to an experienced viewer, especially when several types of atom are present at the same time.

Professor Crewe, a Yorkshirer who started his scientific career as a lecturer at Liverpool before moving to Chicago in 1955, explains that the greatest problem he and Dr. Isaacson faced when they set out to obtain atomic movies from their scanning transmission electron microscope was to make the equipment totally immobile. Even a movement of a billionth of an inch during the experiment would ruin it. Eventually they managed to insulate the microscope in a high vacuum.

Since obtaining their first colour

film in August, they have observed the behaviour of several different types of atoms on the ultra-thin carbon films (only four or five atoms thick) speaks of the extremely narrow beam of electrons that is fired through the sample.

Since the extent to which the human eye can easily detect differences in brightness in a black-and-white picture is limited to only about 10 shades of grey, the colours greatly increase the clarity of the film and the information available to an experienced viewer, especially when several types of atom are present at the same time.

Professor Crewe, a Yorkshirer who started his scientific career as a lecturer at Liverpool before moving to Chicago in 1955, explains that the greatest problem he and Dr. Isaacson faced when they set out to obtain atomic movies from their scanning transmission electron microscope was to make the equipment totally immobile. Even a movement of a billionth of an inch during the experiment would ruin it. Eventually they managed to insulate the microscope in a high vacuum.

Since obtaining their first colour

Institutions told to go solo

Institutions of science and technology have been advised to set up their own environmental qualifications, based on each body's specialized disciplines, rather than adopting a general standard of requirements. And the Council for Environmental Science and Engineering has also urged that these qualifications be based on existing courses at universities and polytechnics.

The CUSE has recommended that member institutions of the Council of Engineering Institutions and the

Council of Science and Technology Institutes should be free to establish their own environmental qualifications using university and polytechnic courses.

Professional bodies should recognize a number of suitable advanced courses in specialized fields offered by universities and polytechnics at postgraduate level and should consider devising their own examinations as unnecessary," the report states.

The chairman of CUSE, Dr. Arnold Robinson, said examinations were expensive to hold.



Rock on in Gibraltar

NOW is the time to swing into action and book yourself a Thomson holiday in Gibraltar. Thomson can offer you the Hotels Queens, Holiday Inn or Rock Hotel at prices which start from as little as £59 for 3 nights (b & b) in the Queens. There's a choice of 3, 4 or 7 night holidays and departures are in November and December, flying from Gatwick.

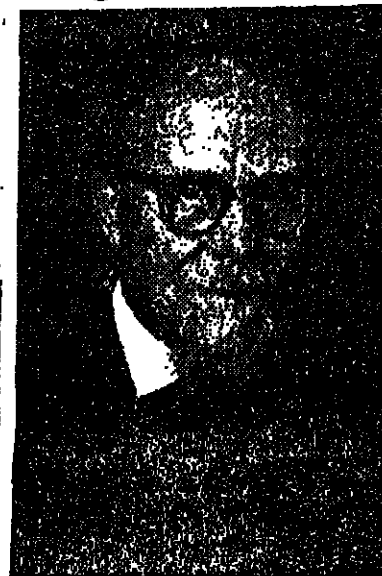
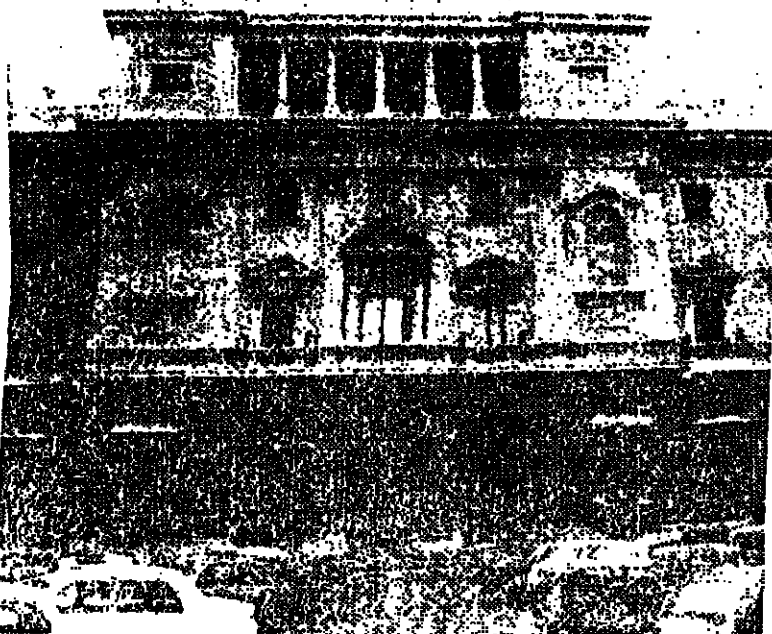
So hop along to your travel agent for full details or ring us on 01-307 4461 or 081-833 8222. All holidays are covered by the Thomson price guarantee.

ATOL 152 BC.

Thomson Winter Cities

Overseas News

Uli Schmetzer reports on the Jesuit-run Gregorian University once attended by the new Pope



Left: the Gregorian University building. Above: Padre Gustav Wetter and (right): part of the interdisciplinary programme.



ROME

Students dressed in cassocks, habits and clerical collars daily climb a spiral staircase leading to a maze of attic rooms to glean information from 30,000 volumes of Marxist documents.

They are priests, nuns and seminarists of the Centre for Marxist Studies, at the Pontifical Gregorian University, an institution which has traditionally educated a large sector of the Vatican's hierarchy.

Not far from the centre, in another part of the colonnaded university buildings, 12 five-year students in psychology submit to a term of psychotherapy by their professors in order to be "liberated from their own inner conflicts" before embarking on the rest of their course. The university reserves the right to reject any psychology student considered "unsuitable" after analysis.

The Gregorian has come a long way since its foundation in 1553 with chairs in only theology and philosophy. Today the Jesuit institution incorporates 10 faculties and prides itself that among its graduates were 18 saints, 25 blessed and 16 popes, including the late Pope John Paul (bachelor in sacred theology, 1942 and doctorate of theology 1947) as well as his predecessor Pope Paul VI.

The university's influence on the Church's thinking has been profound.

That the university's influence on Church thinking is profound can be gauged from statistics revealing that 46 current cardinals (33 per cent of the 135-member College of Cardinals) and 897 bishops (22.3 per cent of all Roman Catholic bishops) have passed through it.

Often dubbed "the Vatican's hatchery", the university benefited from reforms initiated in the Ecclesiastical Council of the 1960s and reflected in the Apostolic Constitution (the guideline of Catholic universities).

These reforms abolished compulsory Latin as the Institute's conversing language and gave scope to new initiatives like the Marxist study centre and the psychology and social sciences faculties.

Then in 1966 the first nun was accepted as a student. Today 433 women are among the 2,077 student population. Of these 249 are nuns and 184 laywomen—many of them Italian mothers who drop their children at school in the morning and then rush to attend lectures.

Continuing tradition of the Vatican's hatchery

Karol Wojtyla, the 58-year-old Polish Cardinal, who has become the first non-Italian pontiff in 455 years, has participated in seminars and conferences at the Gregorian University.

An academic of great prestige, within the Church hierarchy, John Paul II (his new Pope took the name of his predecessor who died after a 33-day reign) was sent to Rome by his diocese after World War Two to study for his doctorate of philosophy.

He received his doctorate in 1948 at the pontifical Athenaeum Angelicum, the Catholic University in Rome run by the Dominican order. (The Gregorian is run by the Jesuits.)

The new Pope's interests in educational institutions began early. While still in secondary school

(and working during the daytime in a chemical factory) in Krakow he established a recreational and instructional centre at the factory.

After returning as a doctor of philosophy from Rome he was appointed professor of ethics at the Catholic University of Lublin and in the theological faculty of the University of Krakow.

Passionately interested in French philosophy (he was captured in France by the Nazis and sentenced to hard labour in a quarry) Pope John Paul II has written numerous essays on French philosophical reviews, and a series of studies including a monograph on May Scheler, the philosopher who substantiated a philosophical anthropology in which the relationship between spirit and life is the central point.

Padre Gustav Wetter, head and founder of the centre, said: "Marxism to many people is still a myth. It is important to destroy this myth and show people how Marxism works."

German-born Padre Wetter, a diminutive man with an unassuming smile, is a professor of philosophy at the Gregorian University.

With a reputation for being the most progressive of the Catholic universities in Rome the Gregorian switched from Latin to an ambitious five-language programme.

Although lectures are given in Italian, written and oral examinations are now accepted in French, English, Spanish and German.

The library is stocked with multilingual books, and in a country with a chronic teacher shortage and congested campuses the Gregorian is in the unique position of having available 250 multilingual professors, instructors and assistants to attend 2,000 students from 80 countries—a ratio of eight students to a teacher.

This situation is likely to remain as long as the Concordat (the agreement between the Italian state and the Vatican) does not recognize the degrees of Catholic universities.

With the university's emphasis on theological themes (it has the largest theology faculty in the world) its bulk of students are sponsored by dioceses or religious orders who often select "bright" students for a "Roman education"—a virtual prerequisite for promotion into the higher echelons of the ecclesiastical hierarchy.

The current student population is made up of 465 ordained priests, 440 seminarians and 571 nuns and nuns. The remaining "student body" are principally from Third World countries where a degree at the Gregorian is considered particularly prestigious.

Father Filippo Solvaggi, the general secretary of the university, said: "In the faculty of social sciences, for example, we have a total of 23 students. Of these 14 are African, mainly from Nigeria and Ethiopia. Many of them return to their countries with a degree that enables them to obtain an excellent teaching job."

Father Solvaggi, who is also professor of philosophy, admits that the Gregorian could comfortably accommodate more students. He blames the decrease in enrolment over the last decade (down an

average 800 a year) on an increasingly realistic world where theological degrees are of little practical use outside the Church and the decentralization of Church power, with developing nations anxious now to have their seminarians study at least for the first year at home rather than send them to Rome.

But on the other hand the close student-professor relationship and the tranquillity of campus life constantly prompted many Italian students to enrol at the Gregorian (where tuition fees are an average £70 per academic year) but to take their examinations at state universities.

Some attend lectures at the Gregorian as "guests" (fee £7 a year) to supplement state campus lectures which are often cancelled by disturbances.

As a Jesuit institution, the university is financially self-sufficient. Father Solvaggi says: "Tuition fees meet only one third of expenses. The remainder comes from the remuneration received by professors for literary contributions and conferences and from private donations."

With the guidelines of education set out in the Vatican's Apostolic Constitutions (a new one is due soon) the university council decides on the type of courses and leaves the faculty professors free to select their own material.

Progressive apostolic constitutions in recent years under the reigns of John XXIII and Paul VI have unveiled new teaching perspectives.

The creation of the Centre of Marxist Study in 1970 coincided with Pope Paul's probing Ostpolitik—an effort at rapprochement rather than reconciliation—which attempted to reestablish severed links with the Soviet Union.

Third World countries with Marxism required a more elaborate knowledge of the philosophy from priests.

Padre Gustav Wetter, head and founder of the centre, said: "Marxism to many people is still a myth. It is important to destroy this myth and show people how Marxism works."

German-born Padre Wetter, a diminutive man with an unassuming smile, is a professor of philosophy at the Gregorian University.

With a reputation for being the most progressive of the Catholic universities in Rome the Gregorian switched from Latin to an ambitious five-language programme.

Although lectures are given in Italian, written and oral examinations are now accepted in French, English, Spanish and German.

The library is stocked with multilingual books, and in a country with a chronic teacher shortage and congested campuses the Gregorian is in the unique position of having available 250 multilingual professors, instructors and assistants to attend 2,000 students from 80 countries—a ratio of eight students to a teacher.

This situation is likely to remain as long as the Concordat (the agreement between the Italian state and the Vatican) does not recognize the degrees of Catholic universities.

David Walker talks to Daniel Boorstin

Historian keeper of America's books

The Librarian of Congress of the United States has been a distinguished breed and, naturally, Daniel Boorstin, the twelfth in line since President Thomas Jefferson made his first appointment in 1802, is an exception. It is said the directors of this great library have alternately been professionals or scholars and poets with a broad vision.

Padre Gustav Wetter, head and founder of the centre, said: "Marxism to many people is still a myth. It is important to destroy this myth and show people how Marxism works."

German-born Padre Wetter, a diminutive man with an unassuming smile, is a professor of philosophy at the Gregorian University.

With a reputation for being the most progressive of the Catholic universities in Rome the Gregorian switched from Latin to an ambitious five-language programme.

Although lectures are given in Italian, written and oral examinations are now accepted in French, English, Spanish and German.

The library is stocked with multilingual books, and in a country with a chronic teacher shortage and congested campuses the Gregorian is in the unique position of having available 250 multilingual professors, instructors and assistants to attend 2,000 students from 80 countries—a ratio of eight students to a teacher.

This situation is likely to remain as long as the Concordat (the agreement between the Italian state and the Vatican) does not recognize the degrees of Catholic universities.

With the university's emphasis on theological themes (it has the largest theology faculty in the world) its bulk of students are sponsored by dioceses or religious orders who often select "bright" students for a "Roman education"—a virtual prerequisite for promotion into the higher echelons of the ecclesiastical hierarchy.

The current student population is made up of 465 ordained priests, 440 seminarians and 571 nuns and nuns. The remaining "student body" are principally from Third World countries where a degree at the Gregorian is considered particularly prestigious.

Father Filippo Solvaggi, the general secretary of the university, said: "In the faculty of social sciences, for example, we have a total of 23 students. Of these 14 are African, mainly from Nigeria and Ethiopia. Many of them return to their countries with a degree that enables them to obtain an excellent teaching job."

Father Solvaggi, who is also professor of philosophy, admits that the Gregorian could comfortably accommodate more students. He blames the decrease in enrolment over the last decade (down an

average 800 a year) on an increasingly realistic world where theological degrees are of little practical use outside the Church and the decentralization of Church power, with developing nations anxious now to have their seminarians study at least for the first year at home rather than send them to Rome.

But on the other hand the close student-professor relationship and the tranquillity of campus life constantly prompted many Italian students to enrol at the Gregorian (where tuition fees are an average £70 per academic year) but to take their examinations at state universities.

Some attend lectures at the Gregorian as "guests" (fee £7 a year) to supplement state campus lectures which are often cancelled by disturbances.

As a Jesuit institution, the university is financially self-sufficient. Father Solvaggi says: "Tuition fees meet only one third of expenses. The remainder comes from the remuneration received by professors for literary contributions and conferences and from private donations."

With the guidelines of education set out in the Vatican's Apostolic Constitutions (a new one is due soon) the university council decides on the type of courses and leaves the faculty professors free to select their own material.

Progressive apostolic constitutions in recent years under the reigns of John XXIII and Paul VI have unveiled new teaching perspectives.

The creation of the Centre of Marxist Study in 1970 coincided with Pope Paul's probing Ostpolitik—an effort at rapprochement rather than reconciliation—which attempted to reestablish severed links with the Soviet Union.

Third World countries with Marxism required a more elaborate

image, and a host of other works, and reaches such heights that it sometimes seems like the celebrant of some joyous cult.

At first glance, Dr Boorstin's seasonal seersucker suit and red polka dot bow tie made him an unlikely candidate for apologist for technology. Now, he, despite the computer terminal in his Library of Congress office from which he can plug straight into the central library catalogue, is a man for gadgets. No, his feeling for the technology which has made the United States into a world power is intellectual.

In his book he argues a conception of technology as "technique for bringing more unexpectedness", and also, paradoxically, as an agent for social unification. In an age when the cost of the machine, its pollution, its responsibility for alienation are often stressed, the Boorstin view is still fresh with the opportunities a technological civilization possesses for social harmony and existential excitement. First and foremost, it is a vision of American opportunity—and by extension—a pattern of opportunities for other countries to follow or reject.

It would be misleading, however, if citing such passages made Dr Boorstin appear some unqualified optimist of *The Republic of Technology* a sunlit pasture without shadows. On the contrary no Librarian of Congress, even if like Dr Boorstin he was previously director of the National Museum of History and Technology, can stray too far from the paths of social thought laid down by the Library's great founder Thomas Jefferson.

Jefferson had a strong sense of social order and the limits of social progress and Dr Boorstin, whose own works are steeped with Jeffersonian aphorisms and indeed one of whose first major works was a study of the man, would probably follow him quite a way.

For example, Dr Boorstin has always balanced his celebration of America with something approaching despair at the fakery and superficiality of aspects of the national life and character.

He has been well known in Britain and Europe as *The Image*, in which he coined the term "pseudo-event" for the creation by film and television of actions and personalities with very little reality.

Yet Padre Wetter's own book of exposing Marxist lies has not always found a favourable echo among his students. Recently he found the following advice on the door of his lecture hall: "Wetter—go home."

The centre was given these aims: research, education and documentation. It offers one-year courses, open to all qualified students, and a two-year specialization in Marxist theory.

Marxism to many people is still a myth... it is important to destroy that myth and show how Marxism works.

But Padre Wetter sees its future in the stark light of reality: "What can you do with a degree in Marxism? What weight does such a diploma have and who can afford to study Marxism for three years?"

In fact only an average 10 students a year enrol for the specialization course while between 20 and 30 attend the first cycle (basic knowledge) course as part of their education in philosophy.

The backbone of the centre is its excellent 30,000 volume library with its section on Soviet ideology courses and the best in the Western world.

Among its volumes are Marxist works withheld in the Soviet Union for many years for ideological reasons and the three last published in Stalin's works, never published in the Soviet Union but 150 periodicals are Chinese newspapers which arrive within three days from Peking.

"I would really like to see more students at the centre, especially research groups working together to that the library can be used more profitably," Padre Wetter says.

At the meantime he is fighting against student thieves who constantly pilfer books.

The detail and profusion of his work is found in his three-part series, *The Americans*, on in *The Republic of Technology*, Reflections on Our Future Community, Harper and Row \$8.95.

College that wanted to be a poly

John O'Leary on the confident future of Ealing College

Any notion that the colleges and institutes of higher education are more than revamped versions of the old teacher training institutions is quickly dispelled by a visit to Ealing College. As if to underline the diversity of the new sector, Ealing is one of a small group of former technical colleges which has no school of education and offers instead a broad spread of courses, ranging from cake decoration to modern European studies.

The only connexion with teacher training is a thriving course in English as a second language, which owes its origin to the college's admirable traditions in the field of languages than any desire to experience the uncertainty of provision for teacher education.

Indeed, the college's status has long been a delicate issue. Hopes that it would become one of the first polytechnics were dashed when the list was announced in 1966 and instead the college was given the nebulous title of "specialist centre for higher education", the meaning of which has since been forgotten even by the Department of Education and Science. More recently it was to become an institute, via a merger with Thomas Huxley College of Education, and finally, last year, it was designated a college of higher education. Much to the annoyance of some staff, roadsigns still point the way to Ealing Technical College.

The question of polytechnic status has been shelved officially but there is no mistaking the feeling of injustice that the college should have been passed over, or the obvious ambition to rectify this omission. It is easy to sympathize with this point of view, for there are many points of similarity between Ealing and the smaller polytechnics.

The college would certainly not be embarrassed by its standards in such company and, despite some criticism over resources at the time of its last quinquennial review, it enjoys a well-established and amicable relationship with the Council for National Academic Awards. Dr Neil Merritt, the director, admits that, while no efforts are being made to change the college's new designation, both he and the majority of staff would welcome polytechnic status if the number of institutions was ever extended.

However, for the time being at least, Ealing has thrown its lot with the colleges, the most striking of which is the number of overseas students. They are not filling up empty course places but taking part in a network of well-established visits which can involve Chinese, Vietnamese, Russians, Americans, French, Germans and Mexicans, among others.

As Mr Derek Winslow, head of language studies, says, the college has all the ingredients of the third world war, although in practice many of the different nationalities never meet because they are in self-contained groups.

The hotel school, with its popular restaurant and international reputation, is another aspect of the college which inevitably creates interest. Mr Victor Cesarani, the head of school who is also the author of best-selling cookery books, can not keep pace with applications for places on courses which presently include a higher national diploma course and to which he would like to add a degree. The quality of the



Neil Merritt—would welcome polytechnic status

the budget would damage standards to the point of endangering degree status.

Since then, however, money has been made available to correct some of the "grave deficiencies" in library provision and non-academic staff establishment criticized by the CNAA. Relations have improved considerably and there is optimism that a development plan will be approved.

Today the college, which is in its 50th year, has 5,200 students, of whom 1,800 are full time. It operates on two sites, one in Ealing itself housing the administration, languages, humanities, law and social sciences, hotelkeeping and catering, the other in Acton, presently shared with the Thomas Huxley College and housing librarianship, economics and business administration and management. The large majority of even the full-time students hail from London and the Home Counties, allowing the college to rely on word of mouth to produce its applicants.

There has been no shortage of these, Mr Merritt is delighted that admissions have increased for every course, including some, such as humanities, where a national recruitment problem exists in the colleges. Ealing has acquired a reputation for personal attention in its students which, together with traditionally high standards in particular areas, is confidently expected to stand it in good stead during the troublesome years to come.

Several unusual features stand out on a visit to the college, the most striking of which is the number of overseas students. They are not filling up empty course places but taking part in a network of well-established visits which can involve Chinese, Vietnamese, Russians, Americans, French, Germans and Mexicans, among others.

As Mr Derek Winslow, head of language studies, says, the college has all the ingredients of the third world war, although in practice many of the different nationalities never meet because they are in self-contained groups.

The hotel school, with its popular restaurant and international reputation, is another aspect of the college which inevitably creates interest. Mr Victor Cesarani, the head of school who is also the author of best-selling cookery books, can not keep pace with applications for places on courses which presently include a higher national diploma course and to which he would like to add a degree. The quality of the

Ealing's main weakness, which can only be remedied with the aid of a considerable injection of capital, is in its student facilities. Accommodation, while not a serious problem at present, is only provided on a very small scale by the college itself, and any comparison with even the smallest polytechnics would be less than favourable where student union facilities are concerned. There is no room for large meetings or social events and the staff student club, though undoubtedly good for relations, is not what the students would want if ever money was available to provide them with a building of their own.

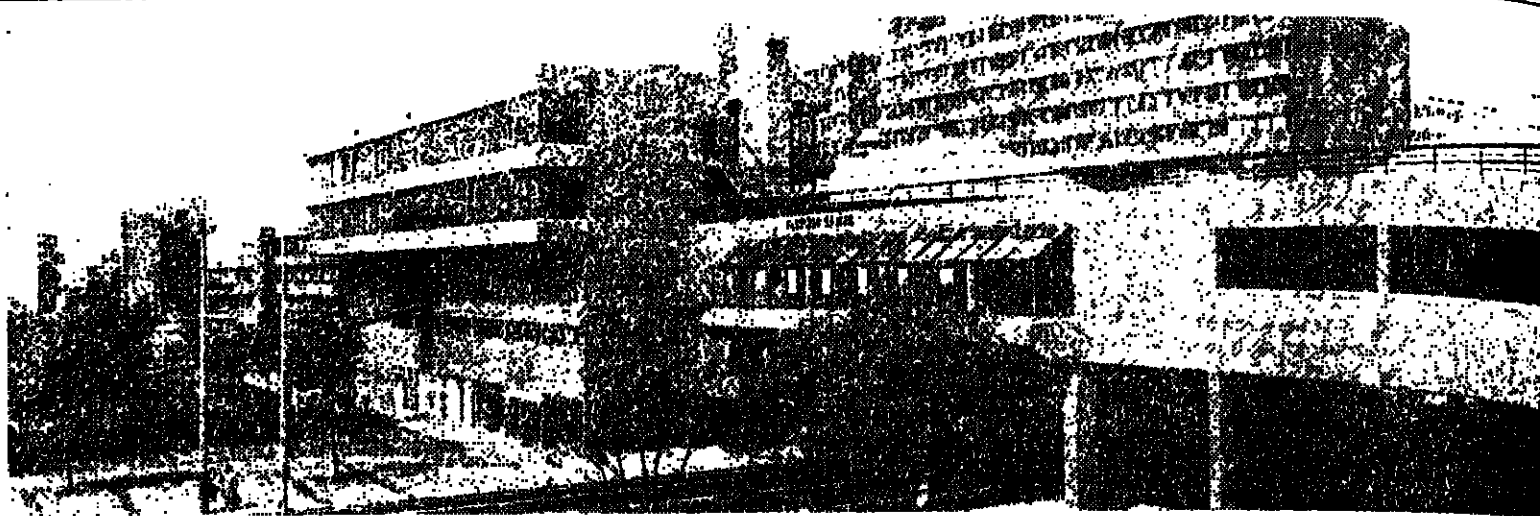
This, however, is something of which the college administration is conscious and which could be attended to if expansion plans go ahead. In other respects, there is little doubt that Ealing is well equipped to meet the demands of the 1980s as an institution which has identified the areas of potential for higher education and set about developing them in a coordinated and well-planned manner.



West Building, St Mary's Road

The Civic Universities

In the first of a new series Ngaio Crequer visits Manchester where the authorities have adopted a policy of campus involvement with the public



The precinct centre which aims to coordinate higher education and public buildings, private and public transport and open space

Creating the right mix of town and gown

Superlatives roll off Northern tongues at Manchester University. Wherever you go someone will claim that their building or department is the first, biggest or best although there is still a reticence to make any claims in the heavy stakes. There is a kind of Muhammad Ali about the place.

Manchester is the first of the civic universities and began modestly enough in 1851 on the proceeds of a legacy left by merchant John Owens of £97,000 for "educational purposes hereinafter appointed." Those were the days of Cobden and Bright, the Manchester School, the repeal of the Corn Laws, free trade and parliamentary reform. The heart of the reform movement was still at Manchester and that city (or at least its middle classes) took a fierce pride in their contributions to the prosperity and social and economic progress of Britain.

Owens College began in a rented house, which had once been Richard Cobden's, Quay Street, off Deansgate. There were five professors and 62 students. It moved to its present site in 1873. It was established as the founding college of the Victoria University in 1880 and was subsequently joined in a federation with colleges at Liverpool and Leeds. But the university retained its independence. In 1903 when it was constituted as the Victoria University of Manchester.

The student population is now 11,000 and will be up to 11,700 by 1981-82. The current first-year entry is 2,980. Eleven per cent of all Manchester students are overseas. University income, including fees and University Grants Committee allocation, is £30.2m this year.

As the university grew it acquired a formidable reputation in research, particularly in the sciences and at different times could boast of its famous names, such as Lord Rutherford, Sir John Stopford, Sir Lewis Namier and Sir Samuel Alexander. Although this is not without its disadvantages—current staff would prefer to be judged by the present rather than past.

The university is currently preparing its submission for the next UGC quinquennial visit in March. In the last quinquennial, it expended by almost 20 per cent, which is the largest numerical expansion of any non-federal United Kingdom university in the period.

The Department of Education and Science discussion paper Higher Education into the 1990s is not highly regarded at Manchester. "It's no Robbins", says Professor Arthur Armitage, the vice-chancellor, with dismissive understatement. He is critical of the paper because it concerned itself too much with student numbers and ignored the wider social and economic and technological changes that must come. He thinks these changes will ensure that universities stay popular and may even increase the demand for graduates. If it is going to be chips (of the silicone sort) with everything then university education will be at a premium.

Professor Armitage says that the science and technology expansion must be done at the big provincial universities because only they have the resources. It will presumably not be too long before a new science building appears on the end of his UGC shopping list.

Manchester does not anticipate any problem of under-utilisation after 1981-82 although the nature of that utilization may change considerably. Discussion has begun on the best way to provide for any extra students and to offer a wider variation of options for part-time students.

At present only 7 per cent of Manchester's students are mature students, an admittedly low figure. But Manchester has a large and thriving extra-mural department. Adults can study for a university extra-mural certificate by attending a two or three year part-time course. These can include essays, examinations, practical work and even dissertations and the gaining of this certificate can count in relation to entry to the university as a mature student on a degree course. Dr Alex Wilson, deputy director of the department thinks that the experience gained over the years could be vital in the development of

new courses for mature students and part-timers. The extra-mural department runs 600 courses a year and almost 14,000 people take part. They also use Holly Royce College which is used for residential courses involving the general public which range from one day to three years.

Since 1971-72 the department has been running three courses a day for people who are unemployed. About 1,000 people have attended in that time. Currently the courses are aimed at the professional and executive class. The department would like to extend it to the young unemployed but it is already "burning at the seams".

The aims of the courses, said Dr Wilson, are to improve the morale of the unemployed, to help them to find jobs as well as good as the ones they had before and to show them how to present themselves in the best light. There are also refresher studies in management. "Seventy or 80 per cent of the people on our courses are back at work within three months, compared with the national average of 30 per cent."

"The problem generally is lack of accommodation, and the need for more full-time staff. As long as the university was putting up new buildings we could try to claim part of them. But now we have no room to manoeuvre."

The department is still maintaining its numbers despite the economic squeeze of the past few years but Dr Wilson has noticed that courses for the general public have stopped expanding while those for the specialist have increased. As more people are interested in obtaining qualifications there is a tendency to go back to the longer courses. Courses, which were once predominantly night-time activities are now becoming day and night-time.

A working party to examine the question of part-time degrees was set up following publication of "Higher Education into the 1990s". Its terms of reference were to advise the vice-chancellor on the provision of part-time courses including degree, post-experience and extra-mural courses, and to examine the feasibility of extending such provision having regard to all the circumstances, in particular the expected pattern of higher education in the 1990s. The position of mature students and course requirements, including the transfer of academic credits.

The working party will make recommendations which initially will be circulated to the faculties for their reaction. What is clear is that there will be no pressure to extend into this field if they are unwilling. But there is some hope within the university that the first part-time degrees will be introduced by 1981-82.

For such a traditional university Manchester has acted quickly in responding to the possible future pattern of higher education. Though working papers at Manchester often suffer the criticism levelled at Royal Commission: it looks as though you are doing something, keeps the male antagonists happy and takes years before something, if anything, follows as a result.

A number of new courses for undergraduates have been introduced to increase flexibility. Manchester reacted to the national discussion interest in modern languages by bringing in joint honours courses, but still retaining single honours. Students can now, for example, study German with French, French with Russian, or Spanish with French, and they are still three-year courses. The first subject is a major, the second a minor.

There has been a general growth in joint honours degrees in both science and arts, and an attempt, such as mathematics and social science, to bridge the two. There has been an increasing emphasis on broadly-based courses.

About five years ago the university introduced an honours course in Combined Studies, which is slowly developing. Students generally study three subjects in the first two years and specialize in two of them in the third year. There are restrictions but

nearly 50 courses are on offer. The general arts degree has now gone.

But not all experiments in new subjects or combinations are immediate successes. An honours course in philosophy and politics which started this session began with only one student.

A much-heralded four-year degree course in speech pathology and therapy has been introduced in the department of audiology and the education of the deaf; this is one of only two such departments in the country. There is an MSc in community medicine for graduates in medicine and other departments.

In science the principal is a core subject with a built-in flexibility with a number of options. The idea is that up to a third of a course can be replaced with options outside the parent department and in some of the courses this remains so for all of the three years.

A number of new degrees have been introduced involving computer science, such as computer science with psychology, computer science with mathematics. There is also an elite engineering degree, manufacture and management, run jointly by Manchester, UMIST and the Manchester Business School.

The major feature of the last quinquennial was the development of the medical school. A huge building was provided at a cost of £12.7m, with two miles of corridors and 3.75 miles of laboratory benches. One recently qualified doctor said: "I think I only ever saw 20 per cent of it. It is a building to get totally lost in."

It is the largest medical school in Europe and will produce 275 doctors a year. There was local rivalry at one stage with Salford Jostling for the honour, saying it had better teaching hospital potential, but Manchester disputed this and got the go-ahead. Four months after the whole-body scanner was invented Manchester had installed one and is now helping to pioneer the technique.

The medical school places great store on its updated curriculum. If sends fourth-year students to district general hospitals for the full year to give them a 24-hour type feel of the place and allow them to follow cases through.

A new examinations system is also being introduced. Continuous assessment has been replaced by what Professor F. R. Beswick, dean of the medical school, calls "continuous assistance". Previously students could exempt themselves from some year-end examinations if they showed themselves to be up to scratch. Now the exemption is gone and students are given informal "feedback" assessments by their tutors.

Research is still one of Manchester's strengths and the variety of it is enormous. Jodrell Bank has more than £3m to complete its telescope network. Marine technology researchers, working with other northern universities, are investigating the idea of a "home" in the sea for deep-sea divers, which would include a kitchen and dining room among other things.

A motor-cycle research unit has been set up. The Hester Adrian Research Centre has achieved an international status in its work for the mentally handicapped. A research consultancy service set up five years ago is now staffed on research carried out in collaboration with other bodies, on contracts and patents. Last year 21 patent applications were filed through it.

In 1977-78 there are 1,777 postgraduates, which is 16.7 per cent of all full-time students. In addition the university has approximately 700 part-time postgraduates. But Manchester, along with other universities, has been sorely hit in the area and is making plans gradually to increase its numbers of postgraduates. The projection for 1981-82, 2,000 which will be a percentage of 17.0 of the total student population. According to its submission to the UGC for the 1977-78 quinquennial postgraduates were 20.79 per cent of total numbers.

But certainly the feeling in Manchester now is that the worst is over. The freezing

of up to 40 posts in 1972-73 and 1973-74 brought economies but contributed to a strong sense of uncertainty. The university dipped into its reserves in 1975-76 to create 30 new posts and this year there are 31, 11 of them support staff.

Sir Arthur warned about the danger that continuing economics would have on the quality of teaching and research when he made his annual report in 1974-75. But by 1977 he was able to talk about the "vigour and strength" of research activity.

Staff: student ratios have deteriorated over the past five years by a point. It ranges now from at best 6:1 in clinical medicine up to as much as 12:1 or 13:1 in some arts and humanities subjects. In 1971-72 the ratio for the university as a whole was 7:1, which had declined from 6:1 in 1967-68.

Staff have noticed their workload increase. Dr Peter Lowe, a senior lecturer in history, says he is now on average teaching for 11 hours a week, three more than five years ago. He says the increase is general in his history department.

There are now ten people in a tutorial, compared with six or seven last year. We are getting worried about the size of some of our groups. We are getting to the limits."

The situation is made worse because there has been a general tendency to move away from the big lecture towards seminars, and although staff make themselves available to discuss theses or projects with students or give general advice.

The regularization of a leave of absence system, a gain of the last UGC visitation, has also made the situation more difficult. Instead of the previous situation, when leave of absence was given to departments, leave is now automatically given (though not always taken)—one term off for three years, two terms for six years. If, as sometimes happens, the leave is saved up, to enable continued research, then staff have difficulties in "covering" for their colleagues.

There are also criticisms of the lack of tutorial teaching, the lack of back-up support. There has also been a general deterioration in the provision of staff communal facilities such as places to eat.

On academic development Manchester lies the wheels to turn slowly and sometimes they have been known to stop completely. Nevertheless, it could not ignore some of the challenges in academic processes, albeit unintended, thrown up in the wake of the new universities.

In 1969 the senate instituted a working party to carry out an inquiry into matters relating to the academic assessment of students. It made an interim report to senate in 1972 and made its final recommendations in June 1974, when it became known as the Rutherford report.

The report stated: "Although there is some evidence that examinations in novel examining techniques are being carried out, the university as a whole remains conservative in its examining procedures."

The working party was not only concerned to make its own assessment of different examining methods, it was interested in finding out what practices actually prevailed. They looked at the form of final examinations, papers and how final examinations, the use of external examiners, the examination of projects, the use of course assessment, methods of informing new members of staff about departmental standards and practices and the equivalence of standards from year to year.

The working party found that the traditional three-hour examination was still firmly established but that dissertations, projects, practical and oral examinations were common use and counted, in varying degrees, towards final classification. But it found that there was not much evidence of the use by departments of continuous assessment in the sense of judgments of performance in seminars or tutorials by individual members of staff and indeed came to the view that this should not be incorporated into the classification structure.

The Civic Universities

The reasons given were that it altered and weakened the relationship between teacher and taught, it placed too much pressure on the student and it could not be assessed by the external examiner and was too subjective.

But the working party made a distinction between this kind of continuous assessment and marked coursework. "We consider it very desirable that the properly regulated examination of coursework should count towards the degree classification. The assessment of such coursework should be properly standardized, and should not be carried out at such frequent intervals that it seriously interferes with the student's freedom to determine his own work-pattern."

Clearly Manchester was not in a mood critically to change its time-honoured means of assessment and indeed, with a working party including Professor Brian Cox, of Huddersfield, it was obviously always unlikely. But there was an overwhelming desire for change, apart from the student contingent which argued that classification of degrees should be abandoned altogether. It was also the case that there was an immense and healthy variety of procedures used within different departments with varying degrees of staff involvement in making decisions about setting examination papers, deciding on the extent of marked coursework and saying the evidence should count in judging borderline cases.

At the risk of being accused of a lack of leadership, senate decided to continue to rely on the initiative of individual departments.

But the working party made one recommendation which was universally welcomed and went some way to meet a criticism of allowing departmental initiative, that of increasing the university. There was some concern about the variety in re-sit procedures. The need was for as much flexibility as possible to allow departments to use the same chance as staying on honours courses.

The working party recommended that no irreversible decision should be made in June of the first year and that flexibility should be maintained in the second year by converting the first three hours of a sessional examination, which would allow September results.

By and large the first aim has been achieved but there has been little in the way of second. Certainly for the majority of arts courses, preliminary honours has now become a first year examination and students can re-sit. But there is certainly student concern about the second year. It has no opportunity to re-sit. It is particularly in some departments but not in others.

Professor P. Bromley, pro-vice-chancellor and chairman of the staff student consultation committee, recognizes the charge that the university has failed to decide this for itself. Our anxiety was to get the boards to look at this again. Senate has agreed to consider the Rutherford report, and to ask the faculties if they want to change this."

In the early part of this decade Manchester revised its statutes and a change which was almost universally welcomed was the creation of departmental boards.

Where their introduction professors could no longer run their departments without consulting or discussing matters with staff. Departmental boards consist of all full-time members of teaching staff and all full-time staff and students. Most departments now have student members who must leave for reserved business.

The board has power to review the teaching in the department and to advise the pro-vice-chancellor on the department, and the allocation of staff among the academic and technical staff, the allocation of resources, space, finance and apparatus and departmental developments.

And professors are not automatically chairmen. The board elects the chairperson. According to statute the boards' powers are advisory but as Peter Lowe says: "In practice they have largely accepted what we have said. So we have moved from what was down in the constitution. And must have seen this as a development."

But further up the pyramid of university governance little has changed. Although the representation on the body has changed considerably to about 100 members, it is still a very undemocratic body. About 100 members of 300 entitled to attend usually vote. Twenty-five per cent of senate are staff members of staff.

Staff feel that major policy decisions are made beforehand by small committees of officers. Senate is "flexible" say some members of staff. But of course the arguments common to most universities are as anywhere else. The Association of University Teachers' membership of 1,500, the biggest in the world, is a reminder of the power of the staff. The Manchester and Oxford branches were able to hire a train to take people to London for the pay the campaign has increased interest in the AUT and what they would like it to be.

At the risk of being accused of a lack of leadership, senate decided to continue to rely on the initiative of individual departments. But the working party made one recommendation which was universally welcomed and went some way to meet a criticism of allowing departmental initiative, that of increasing the university. There was some concern about the variety in re-sit procedures. The need was for as much flexibility as possible to allow departments to use the same chance as staying on honours courses.



The main building of the old quad

regional officer, full-time, representing the north-west and based in Manchester.

What it would like to see within the university is a professional agreement drawn up which would specify the consultation and negotiation rights. As one lecturer put it: "The university still thinks it is adequate to invite AUT representatives to explain their views and for them to withdraw while the committee decides."

One cannot look at Manchester University in its own right. The university campus stretches towards the city and meets the University of Manchester Institute of Science and Technology (UMIST) and the polytechnic on the way. A total of 25,000 students more or less in one long line.

As Mr John Crosby, director of the department of building services, puts it: "That is half of Old Trafford. But you do not feel like that. You do not feel you are at a football match and everything is in walking distance."

The planning of the education precinct has been governed by two main desires: to keep a unitary whole but also to keep the campus as open to the public as possible. The danger of its continuing expansion on one spot is that it becomes an educational island in the middle of Manchester.

The university is built on both sides of Oxford Road, a busy street which leads into the city centre. Ideally, with an open plan university the aim is to encourage movement through the university from the outlying suburbs of Hulme and Brinsford.

As the university grew outwards there was some feeling of resentment as it encroached more and more on outlying working class communities, even though some could only be described as slums. The university claims nevertheless always to have got on well with the city ("we are the largest ratepayer") and it is now probably true that by moving inwards towards the town centre they are helping to save inner city premises by bringing people and life back.

Manchester town hall has its confidence shaken by the reaction to its indoor shopping centre, the Arndale Centre which has violated the skyline and has contributed to a run-down of minor city centre streets.

The Manchester Education Precinct plan was an exercise in planning under duress. It was a joint venture between the Manchester Institute of Science and Technology, Manchester Corporation and the United Manchester Hospitals. The plan was devised in 1967 and revised in 1974. It was to be "one of the boldest European concepts in educational planning."

The precinct covers 280 acres, one and a quarter miles long and a third of a mile wide, with an estimated projected population of 43,000, the size of a small town. The aim is to coordinate major higher education developments with public buildings, to plan landscaping, private and public transport and open space. Mistaken, of course, have been made but the plan has helped to revitalize and improve the appearance of a vast area of Manchester.

Many of the university buildings are, of course, open to the public. The museum is open during office hours and up to 9 pm on Wednesday evenings. The Whitworth Art Gallery, the Contact Theatre and the University Theatre obviously rely on public support.

But the university has also to consider the problems of security and vandalism. The social and educational desire to open up the university has to be balanced by the physical constraints of the town and gown mix, creating a town and gown mix becomes a management problem.

Both the city and the university have been able to come together to try to solve some of their housing problems. Manchester has always had a student accommodation problem and it is a student crisis proportions in the early 1970s. It could then offer only a third of its students places in university-owned halls of residence or flats or a decreasing majority had to compete in a decreasing private market.

The university can now guarantee all of its first-year students a hall (or equivalent) place and 43 per cent of students live in university-provided accommodation. The aim is to increase that figure to 50 per cent.

Just behind the main university complex, in Hulme there are a series of local authority medium-rise flats. To say they are ugly is to be polite. They are dull and depressing and with all that is wrong with them the chief complaint among tenants is that they cannot get a transfer.

But they are cheap and very close to the university and in 1975 an experiment began whereby students were given tenancies for one year. There are now 600 students there, only a small proportion of the total population, but the numbers are growing very quickly.

Mr Crosby says: "Students have had a good effect on the place. The neighbours say they like having them there, they are not vandals. The police have said the area is calmer now. A council house rent shared by four students makes rents very favourable."

The students have to furnish the flats themselves but furniture can be had quite quickly and it is passed on from year to year.

Three years ago the university started to worry about declining availability of flats and so began a policy of direct leasing. The university goes to the private sector and leases accommodation from individual landlords. The university pays the landlord and the student pays the university.

The landlord is therefore encouraged to stay in the market because he knows he will get 15s a week. The student knows the premises will be of a reasonable standard and that the rent will be kept to a reasonable level. There are now about 300 such students in places like Dickinson Road, about a mile from the university.

Inevitably this kind of scheme places a huge administrative burden on the university. Officers have to be sent out to the places, negotiate the rents and check that the landlord is maintaining the premises. The idea is also limited as the university would not want to seem to be hogging all the accommodation in the private sector.

There are two housing association schemes in progress, financed by the Housing Corporation and the Greater Manchester Council. The first scheme is 20 flats for families and the intention, as the site is adjacent to the International Society, which provides activities for overseas students, is to have a strong overseas student involvement.

The second scheme is for 120 flats, ranging from bed-sitters to family units. In both cases, half the tenants will be students, the rest the general public. The accommodation will be bigger and cheaper than the previous loan-financed student housing.

The schemes will provide generally more accommodation for single people, which is what the Government wants, and it will help bring non-students on to the campus, if they will come.

In 1973 the university made a clear policy decision not to knock any more buildings down. There were a number of factors for this. They had had a number of running battles with students, supported by conservationists and local residents when they indicated their desire to demolish a couple of buildings. One a public house called the Ducie, at the back of the university, was symbolically "drunk dry" on a number of occasions by well-wishers who wanted to show that there was still a popular need for an earthy meeting point. The university relented and it has now become the unofficial senior common room of a university department.

Students occupied a Victorian music building which had become run down, in Devas Street, near the university theatre because they feared for its future and needed extra space for local residents when they indicated the university and the union as "the sun". But students now use it less than they used to and some have lost interest in it. It may well be that it will one day go under the bulldozer to make way for new buildings for the over-stretched drama department.

Demolition then was clearly unpopular in a public mood of conservation. But it was also clear that there would be very little money available from the University Grants Committee for new buildings. So the policy became one of upgrading and renovation. Buildings once scheduled for demolition, such as the old medical school and the Dover Street buildings, which house the faculty of social and economic studies, have all been upgraded.

The students at Manchester are quiet. The burning issue of the day for the student movement, Government proposals for the funding of student unions, attracted a spate of interest from three students at a recent meeting. Clean-cut Conservatives have gradually taken over from long-haired Lefties. One aging naturalist, the kind whose election from career seems to span half a lifetime, mourned: "Nobody even knows how to organize campaigns any more or write leaflets. All that experience has gone."

A great deal of effort seemed to be spent on an internal dispute of ludicrous proportions. A general meeting changed the constitution such that a change in election from the floor of such a meeting would chair meetings of union council and executive. The problem was, having changed the constitution, they could not get a quorum for a subsequent GM and meetings of council and executive could not take place.

But one issue seems to have stood the test of time and that is the protest against university investment in companies or the subsidiaries with interests in South Africa. A new disinvestment campaign is beginning this session and the Manchester Connection becomes news again.

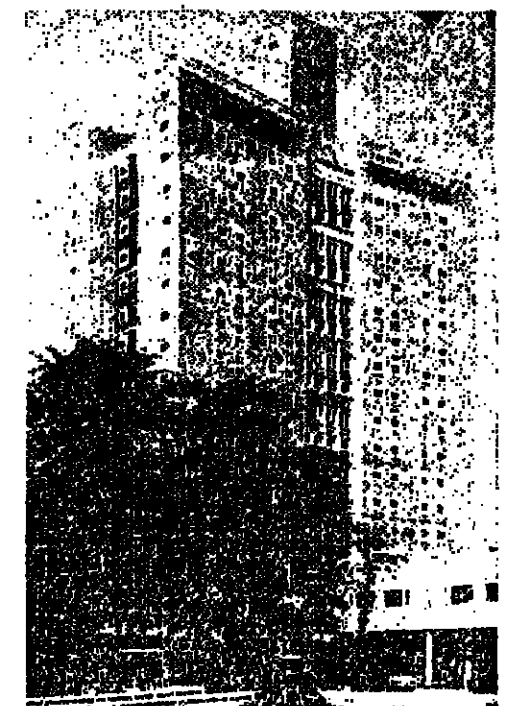
It will be many years, judging the current mood, before students at Manchester consider making the Whitworth (the main administrative block) their home again for a two-week occupation. Although even when this was the vogue Professor Sir Armitage established a certain reputation for dealing with them. At the beginning of one such sit-in, the hours of the beautiful were shut. To prevent forced entry somebody entered, they were opened. And, so student myth goes, the vice also put the kettle on for them.

The student education officers over the past have impressed the university with their diligence. This year Manchester published the first postgraduate alternative prospectus, on top of the usual undergraduate alternative prospectus. They are pressing ahead with their ideas on better teaching methods, representation and academic assessment. Certainly relationships between union and university are made easier.

The students' priority for many years, and which is now at the top of the university's list is an extension to the student union building. The present union was built to cater for just over 4,000 students. The extension was scheduled for 1966 but Manchester may have to wait until the early 1980s before the UGC gives the go-ahead.

But after years of delay Manchester is now building a £4 million extension to the John Rylands University Library. The Muralist Stott conference centre, attached to the library, has just been built thanks to a private benefaction. That opens on October 30th. The Whitford Committee recommended that the library have deposit status. The library will be the biggest university library on one spot and many are saying that it will overtake Cambridge to be the second best of its kind in the country.

After several years of severe economic Manchester University is now consolidating its position and looking forward to expansion once again. Like, no doubt, Muhammad Ali it will not be content to rest on its laurels but instead is preparing itself to look towards new directions as the pattern of higher education changes.



Owens Park student village

How to smooth the path from school to college

Teachers could liaise with dons to make the transition easier, according to Logie Bruce Lockhart

An interesting conference was held earlier this year at the University of East Anglia between dons and schoolteachers on the subject of the transition between schools and universities. Michael de Costa, of the UEA counselling service, introduced the subject by dealing, in an understanding and compassionate way, with the choice from late adolescence to adulthood which many of us never achieve.

He then divided teachers from schools and university into seminar groups, taking as a point of departure each person's difficulties remembered from his or her own first experience of university life. Some candid confessions got the conference off to a good start.

It gradually became obvious that dons and school teachers look at things in a different way. The dons had no way of knowing how many of their incoming students suffered from initial bewilderment and unhappiness; they could only judge from the number who came for help from counsellors. This 10 per cent might be no more than the tip of an iceberg.

On the other hand, many of the teachers had constant contact through contact with their recent school leavers. Many felt that they were better and more candidly documented, and that they had a clear picture. They felt that most students experienced no real trauma despite obvious areas of difficulty.

A few of the first year undergraduates, however, were really unhappy and perplexed. They were nearly always the ones that their teachers would have expected to "run into difficulties". It is not hard to identify the kind of introversion, shyness or temperamental traits that lead to isolation, or the kind of background which makes it hard to make friends, or to pick up courage to take advice, or the kind of personality which is vulnerable to temptation to take drugs or to drink to excess.

The school teachers therefore felt that universities should be warned of some of these dangers, and the interests of each new intake of undergraduates. They were aware of the dangers: such warnings must be careful and restrained. They must carry no element of condemnation and must not be allowed to affect a candidness of character. In such a way that they could give no offence to their subjects.

The dons, especially the younger ones, were obviously far more sensitive to the possibility of being charged with paternalism, interference or nosiness than the school teachers had expected. It would be wise to direct them to a person designated by the university to whom the reports should be confidential, and who would be in a position to assist help in the event of anything going seriously wrong. At least he could be on the alert for any suppressed cry for help. The reports should be written in such a way that they could give no offence to their subjects.

The dons, especially the younger ones, were obviously far more sensitive to the possibility of being charged with paternalism, interference or nosiness than the school teachers had expected.

Labour of love

They believed the undergraduates would, perhaps rightly, be suspicious of having any "warnings" passed on to university authorities. They feared the possibility of being tarred with the brush with past reservations about their character. The school teachers were not convinced. They felt themselves to be less incisive and unsuitable than the dons imagined, and they thought the dons would be more likely to be confident about their character. The school teachers were not convinced. They felt themselves to be less incisive and unsuitable than the dons imagined, and they thought the dons would be more likely to be confident about their character.

The main difficulties were recognized by both sides, and they were

in no way anxious to blame each other. The shock of sudden responsibility and freedom for 18- and 19-year-olds who may never have left university before; the pressure and counter-pressure of permissive contemporaries and restrictive, fearful parents—do I drink plenty, experiment with drugs, sleep with my pre-university neighbours? If not, is there something wrong with me? The uncertainty of how to make friends and who with.

The awkwardness of setting up a social life from a bed-sitter, or digs far from the university. The difficulty of making choices about options within your chosen subject that you may not really understand—the girl who chooses philosophy and is horrified to see it includes logic and statistical method. The absence of structure and authority, followed by the discovery, for an arts undergraduate, that everything depends on individual reading and individual choice of work. The shock of new values. The difficulty of pursuing worthwhile interests and hobbies without pressure or guidance from above.

The disappointments at the comparative lack of contact with those who fail to live up to their own standards of reputation and do not "bang and bowl" the Absolute across the hall. The sheer novelty of looking after oneself financially, administratively, gastronomically and sexually. Above all, pure homesickness and the absence of home, comforting intellect, loving adults who neither dazzle nor mock.

Gap year essential

Where do the Gaps lie? Partly, no doubt, in the failure of many schools to prepare their pupils adequately for the change; not enough teaching how to learn. Partly, the reluctance of universities to choose sufficient men and women because of their teaching and lecturing ability and their ability to relate to and lead young people.

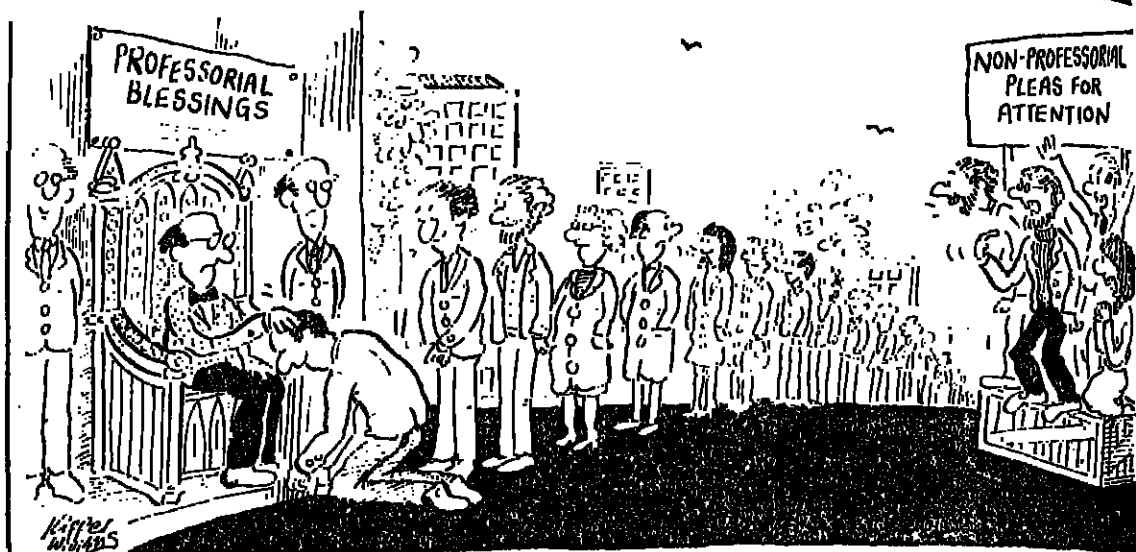
Partly the fault lies in geography and architecture: the bleak tower blocks, the shabby old social union places, especially the sites so far from town centres that the inhabitants of the ivory towers never meet normal citizens.

The cure on which all were agreed was the well used "gap year". Time in which to grow accustomed to student life on one's own and to get to know the Big Wide World before going up to University can do nothing but good. For arts students it is almost essential. If students are to discuss death, disease, poverty, and sex, they must see these things outside the narrow and protected confines of school and university, otherwise their discussions are hollow indeed.

It was said that only a few could ever enjoy such a "gap year". Time with Government support! Not only all prospective students could put the time to profitable use, industry and future employers would benefit. Militants and drop-outs would be less likely to cause trouble in the real world. The more isolated the university, the more its students believe they can change the world in accordance with their ideals, without real understanding or knowledge.

The most important lesson for them to learn is that life is not so simple, and the world takes a deal of changing; so remote academic subjects should have an admixture of practical studies and skills and of the real world. To do something in collaboration with successful citizens is a healthy counterbalance to the more common practice of destructive criticism based on inadequate experience. And it might give them much more happiness. This new way of paying supplementary benefits, like an industrial bit, might, if it were well thought out, be a useful addition to the existing system. It is a sign that things are moving in the right direction.

The author is headmaster of Gresham's School, Holt, Norfolk.



Getting your titles in a twist

Truth being no respecter of persons, or so it is rumoured, and universities being devoted to the quest for truth, or so certain vice-chancellors declare, it comes as no surprise in our topsy-turvy world (what, by the way, is *topsy*?) that our ranks in academia are ranked. Bluntly, a certain snobbery, unrelated to the pure love of knowledge, prevails; and its essence lies in the use of the title "professor".

When Dr Joe Wiggins, lecturer in German literature at Learningham University, of a morning passes the arts faculty porter, does the latter greet him with a cheerful "Good morning, lecturer"? He does not (so, interestingly, unlike "sergeant", "lecturer" is a rank but not a title). But old Malvolio Panbiance, head of Italian, responds in a "How are you today, Professor?" while Professor Bertrand Smiley, who has Australian graduate students, rates the occasional "Good on you, Prof." (he having quipped their attempts at "bert"-ing him).

Moreover, professors have claims, sometimes personal. There should of course be folding chairs for migratory dons ("dons"—there is another twist word for you, to which we shall tortuously return). A chair is a good mythic piece of furniture to possess. Not everyone has one to occupy or go to. Joe Wiggins, when he went to Learningham from Oxford, could not be said to go to a chair: not even to a stool (more suitable for Glimmering royalty) or a bench (more for a judge). Wiggins, we assume, must stand, and very logical this is too, for as a lecturer he lectures, and what is a lecture if it does not mean standing on your hind legs?

There is, of course, the problem of the reader, who does not have a chair either, but only adventitiously lectures. Does he read standing up, as if scanning a railway timetable? Or better, does he do it lying down? It's a nice thought, to think of old academics Wallfish, gone to a bed of Romance Linguistics in Cambridge.

Also, a professor gives an Inaugural Lecture. Perchance he needs all the arguments he can get. But poor Joe, our lecturer, is not inaugurated. He slides into his room without benefit of omen, auspices or augury.

So all in all a professor has many advantages, leaving aside the extra salary: he has a chair, he inaugurates with some modest pomp, he has a title by which he is respectfully addressed and even in these latter, less autocratic days he is a natural to be department boss.

Ordinary people off campus—men in the street—feel that he is arcane, like a soldier version of a fortune-teller, and essentially a person of gravity, like an intellectual morose, possibly acerbic, for all his pathetic lack of practical knowledge, some new formulae which will bring the nation complex goppies, like plastic television tubes or a new way of paying supplementary benefits. If a don well that's a bit queer (no, I mean odd). Absent-minded brainy women are not much appreciated by the mass of English-

Our universities need more ceremonial, so let's start addressing professors by their rank, says Ninian Smart

men or even, I fear, by the aristocracy.

So our professor, always assuming he stays male, is a respected member of society and definitely a cut above his non-professorial colleagues. (By the way, that's a nice negative definition of which non-professorial folk are doubtless proud.)

By contrast what does the man in the street think of a lecturer? Well, he is somehow qualified, and is envious and immorally long holidays. He is not especially learned, but a bit of a know-all—the sort of fellow to run for the local council or even Parliament. There is a definite suspicion of dandruff and, possibly, Marxism; and he probably tinkers with cars in a way no professor (clearly) would do.

Also he could be at the Tech or the College of Further Education: you don't not professors there. It is all things considered a minor miracle that such a person can be transubstantiated into a professor, but since that miracle typically takes place in another university town your man in the street rarely notices.

I taught at Yale once long ago, and there I had to learn anew the rules. I could put "Professor Smith" on the outside of an envelope addressed to him; but it was "Mister Smith" to his face. Since nearly everyone is a professor and a doctor (save for a few scurvy British people of the old school), "Mister" was mandatory and so snobbery was more circumspect.

Of course, in America there is a greater luxuriance of named chairs, and so named professors: you can find such titles as Arnold P. Quisling, Lester C. Quisling, Professor of Accountancy Research, bright, mentally agile mouthfuls such people are. But let us not yet be diverted to America, for it is the British caste system that I have chiefly in view.

The pull of a chair remains powerful. I heard lately of a man migrating from a good but non-professorial job at Barchester University to a chair in Wigan. Why is old Rodge migrating? I asked a friend. "It's a chair," he responded, looking at me wonderingly, as if my sensitivities had gone to pot through too much sojourn in California. People will do much in pursuit of a chair and the coveted sequel—the most arduous reason, pursuing committees, pulled in signed reviews, even occasionally shrewd intramural marriages. Rank angst can be a powerful motor of scholarship and the engine of scientific endeavour. So is it not perchance a Good Thing?

Before I say why I say that, let me just dispose of a nag I hear already at my elbow. "Spillport! Destroyer of pretty harmless old traditions and titles! Once you're a professor, it'll be 'Warden of the Cinque Ports' next and 'Lord Marshal' not long after that."

But I am all for titles. We do not

use them enough. I would like to see in Italy to address a man as Engineer or Advocate. Our society should use titles more to honour honourable occupations. Moreover, our universities undoubtedly need a bit of ceremonial and (let us face it) mystification. They should be invested with magic and ritual substance. For, after all, so much of truth, the truth we are in quest of, is entirely useless. Just as we honour the Deity, so universities should be pumped up in honour of that which we pursue.

Otherwise a banalistic public, or more probably banalistic politicians in the name of an apathetic public, will dole out the money for funding. Herodotus will write, philosophy and the Rhine will be turned, and the Rhine will be turned into a side-tracked into business studies. So we really do need our mystique. But do we therefore need to retain the title "Professor"?

The question is half about pomp and half about the career. Consider the latter. At the moment academic rewards are salary, rank, title, honours and, by a double negation (withdrawing of the title), some sort of pension. The latter, which is the most important, is a very little sherry a day; and honours can go anywhere.

Since often professors are chosen for being such deskworkers as chairmen, and since a V.C. know well once revealed how harder it is to get a personal secretary, the case for the title as unique differential of scholarship or science has got, to the least, a touch scrambled.

Now on the pomp side of the question, of course, it may well be argued that you have to trot out impressive by allusion the substance no longer has much magic. When everyone including Joe Wiggins is a professor, it doesn't mean much, does it, to everyone being an earl.

Never mind, I say. Not everyone was Mister or Signor once. Let us have the pomp side of the question, of course, it may well be argued that you have to trot out impressive by allusion the substance no longer has much magic. When everyone including Joe Wiggins is a professor, it doesn't mean much, does it, to everyone being an earl.

Also, the universalization of professors solves the problem of how to get a general word for teachers in a higher education. "Don" is, I think, a bit misleading. "Teacher" is too broad, and "lecturer" is too narrow. "Professor" is a good word for teachers in a higher education. "Don" is, I think, a bit misleading. "Teacher" is too broad, and "lecturer" is too narrow. "Professor" is a good word for teachers in a higher education.

Let us all be professors!

And then? Well, then we'll have how much we really love research and reputation, not just a title.

The author is professor of religion at the University of California, Los Angeles.

Into the 1990s—projection or policy?

As one can discern the assumptions about the interplay of socially predetermined factors and central policy are:

That the number of "young home" who present themselves for entry to higher education essentially depends directly on the size of the 18-year-old age group in the population.

That the "adherence of successive governments" to the principles enshrined in the Robbins report has been the (main) cause of the expansion of higher education.

That the Robbins principle of the provision of HE should accord not with manpower planning but essentially with personal wishes.

That it ensured that HE should be available for all those qualified by ability and attainment to pursue the course and who wish to do so.

Of these assumptions the first two are probably wrong and the third is largely lacking in any policy significance.

It is the major part of the period reviewed is actually projected in the paper itself: From 1978 to 1980 the age group of 18-year-olds is projected to fall from 17 per cent to 15.5 per cent, whereas the number of students enrolled rose by 10 per cent (from 313,000 to 345,000).

The graph shows the trends over the whole of this century, in which student numbers rose by about 100 per cent. There is no current debate with the random fluctuations of the age group of 18-year-olds are not available but the same lack of any correlation of trend.

The expansion in full-time student numbers in higher education from 1850 to 1976 in Great Britain, Europe and the USA (relative to their respective total populations) is a long period from 1850 to about 1955 of comparatively slow expansion (interrupted only by the First and Second World Wars) with a very similar pattern for Great Britain and Europe and a somewhat higher rate for the United States. From 1955 to 1976 the rate of expansion is much faster, the rate of expansion of the dominant student age group indicates that a large proportion of this age group are more or less completely outside the sphere of influence.

It is in this light that the significance of the last assumption may be gauged. Naturally the only young persons who wish to be highly educated and make the effort to obtain the "attainments" necessary to pursue higher education will be those who are outside the sphere of influence of the dominant student age group.

Before leaving the remarkable European uniformity of the exponential expansion process the change of slope from 1955 to 1976 and the fluctuations that have set in since 1976 require comment. A plausible assumption is that the slope of the logarithmic expansion curve is proportional to the relative value set on higher education by potential students. This appears to have been fairly constant in most years, but in 1976, and to have experienced an equally remarkable acceleration.

the "privilege" is bestowed almost automatically. In others, the spirit is very much one of "if the man in the street has shown real diligence during the preceding period, he is entitled to it". This is true of all universities; as such, or their senior officers, believe and state that the practice is a desirable one and brings only benefits in the long run.

Perhaps it comes as a surprise, given the attractiveness of the idea, to learn that the "take-up rate" is tiny. Among scientists, I would guess, less than 10 per cent claim, or at least are awarded, this privilege. At a time when the median age of university dons is relentlessly increasing, when staff turnover is faster than ever before, this fact surely requires further examination, for if we have ever needed rejuvenation before, it cannot be as much as we require it now.

Without having done a proper survey (but SSRC grant applicants place note) there seem to be fairly limited numbers of students in the low numbers of those who would like to go, but find themselves frustrated for some reason. The lofty sentiments of my own university "wishes to encourage staff" are often deflected at a somewhat lower level. Professor B. is with a staff of 22, has decided that only one of them should be absent at any given time—of course these would otherwise be claiming their privilege.

Professor D. has decided that any one can go on leave provided they are not in the teaching (surely the basis of regularity and a contradiction of the very idea) or else

The Department of Education and Science paper "Higher Education into the 1990s" has reportedly generated several hundred direct responses. Professor E. G. Edwards, D. K. Knifton, R. D. A. Puckham and L. Roberts claim that unfortunately for the prospect of an informed public discussion it omits to state clearly the empirical or analytical bases for its projections and consequently it is difficult to determine to what extent the paper assumes that some factors can be affected by Government policy or are socially pre-determined. They say the central question for policy—what size higher education system is desirable on social, cultural or economic grounds is not analysed at all except in an oblique reference to the problems of graduate manpower planning.

has for at least a decade laid down fairly rigid guidelines on the proportion of student places in the "relevant" science and technology areas (approximately 55 per cent of the universities' collection of places) and has actively have already decided to keep this target by more than 1 per cent, even when student demand swung so strongly to the arts and social sciences that many science places were left unfilled.

It moves the last and we can understand the frustration of these hopes, and heralded an internationally varying decline in aspiration, again still largely confined to the same socio-cultural constituency.

Such expectations would, of course, tend to be confined to that same socio-cultural "inner circle" referred to above—an assumption supported as follows in "The OECD Analytical Report—the Development of Higher Education 1950 to 1967". The increase in enrolments, post-1955 has been much more rapid for the upper social classes... the disparities in participation rates of the different social

classes have in fact increased in absolute terms. In the event the widespread student rebellion of 1967 highlighted the frustration of these hopes, and heralded an internationally varying decline in aspiration, again still largely confined to the same socio-cultural constituency.

No empirical or analytical reasons are adduced anywhere in the discussion document for dividing the actually observed growth rates in student numbers into two supposedly independent factors, a demographic factor and an age participation rate. The latter, of which much is made in the document, would seem to be no more than an arbitrary arithmetical ratio.

Great Britain, 18-year-old age group, and full-time student enrolment in higher education, 1900-1976.

Thousands

G.B. 18 yr. old Age Group

G.B. Full-time Student Enrolment in Higher Education

Thousands

1900 1910 1920 1930 1940 1950 1960 1970

difficult to determine to what extent the paper assumes that some factors can be affected by Government policy or are socially pre-determined. They say the central question for policy—what size higher education system is desirable on social, cultural or economic grounds is not analysed at all except in an oblique reference to the problems of graduate manpower planning.

has for at least a decade laid down fairly rigid guidelines on the proportion of student places in the "relevant" science and technology areas (approximately 55 per cent of the universities' collection of places) and has actively have already decided to keep this target by more than 1 per cent, even when student demand swung so strongly to the arts and social sciences that many science places were left unfilled.

It moves the last and we can understand the frustration of these hopes, and heralded an internationally varying decline in aspiration, again still largely confined to the same socio-cultural constituency.

Such expectations would, of course, tend to be confined to that same socio-cultural "inner circle" referred to above—an assumption supported as follows in "The OECD Analytical Report—the Development of Higher Education 1950 to 1967". The increase in enrolments, post-1955 has been much more rapid for the upper social classes... the disparities in participation rates of the different social

classes have in fact increased in absolute terms. In the event the widespread student rebellion of 1967 highlighted the frustration of these hopes, and heralded an internationally varying decline in aspiration, again still largely confined to the same socio-cultural constituency.

No empirical or analytical reasons are adduced anywhere in the discussion document for dividing the actually observed growth rates in student numbers into two supposedly independent factors, a demographic factor and an age participation rate. The latter, of which much is made in the document, would seem to be no more than an arbitrary arithmetical ratio.

Great Britain, 18-year-old age group, and full-time student enrolment in higher education, 1900-1976.

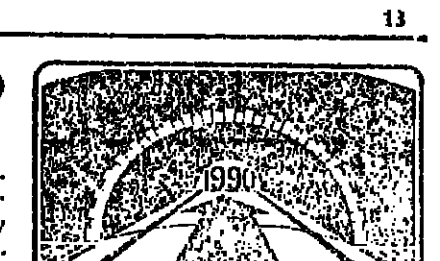
Thousands

G.B. 18 yr. old Age Group

G.B. Full-time Student Enrolment in Higher Education

Thousands

1900 1910 1920 1930 1940 1950 1960 1970



The three alternative projections for AFR to 1990 of 21 per cent, 18 per cent or 14 per cent are seen to have no predictive significance. Indeed the document itself admits that they are without distinction of relative probability. One is tempted to ask—why then discuss them rather than 2 per cent or 60 per cent? (It may be noted that similar doubts are cast upon the significance of this ratio by Cerych in his analysis of recent European trends in "Recent Student Flows in Higher Education".) Hecker, Verniers and Cerych, ICED, Paris, 1976.

Examination of the absolute figures already reached in the United States shows that the ultimate limit to the AFR may be several times higher than the maximum yet reached in any European country.

These major policy questions of how much higher education is desirable, how to widen the socio-cultural basis of intake, and how to broaden participation throughout life remain of vital importance. They will not be solved solely by policy directed towards reforms in the institutions. Though the latter may be vital, they involve more crucially policies oriented to affect the socio-cultural divisions in the community as a whole, in secondary education and in employment. The correct approach to them must be through an active study of those barriers which probably eliminate any aspiration to higher education and the motivation for its attainment from the majority of the population.

Similarly the equally important economic problems of cost cannot be divorced from the potential economic, social and cultural value of its output. This is noted in the document's hardly surprising assertion that graduates are increasingly having to turn to employment to job previously filled by people without higher educational qualifications. Indeed they always have—majority of jobs done now by graduates were predominantly non-graduate employment only a half century ago.

The question is, how can the optimum future utilization of resources be achieved? It is not just planning more on future, industrial, economic and social policy than on deterministic surveys of manpower needs, but this would be the subject of another article.

The authors are at the University of Bradford.

The authors are at the University of Bradford.

Rent-a-don is one intriguing alternative offered by A. T. Kuhn in his search for this vanishing perk

And on the sabbatical they rested

my neighbour (a scientist in the field) and compare our two lives. The three factors he most envies are: freedom, secondly, our ability to work in a full working life with a premature retirement at 55, and lastly, he envies our established practice of giving sabbaticals every seventh year, which he implies

is a 15 per cent bonus "as a reward". At a time when real wages are so hard to come by, the concept of a year's fairly limited number of sabbaticals in the low numbers of those who would like to go, but find themselves frustrated for some reason. The lofty sentiments of my own university "wishes to encourage staff" are often deflected at a somewhat lower level. Professor B. is with a staff of 22, has decided that only one of them should be absent at any given time—of course these would otherwise be claiming their privilege.

Professor D. has decided that any one can go on leave provided they are not in the teaching (surely the basis of regularity and a contradiction of the very idea) or else

the "privilege" is bestowed almost automatically. In others, the spirit is very much one of "if the man in the street has shown real diligence during the preceding period, he is entitled to it". This is true of all universities; as such, or their senior officers, believe and state that the practice is a desirable one and brings only benefits in the long run.

Perhaps it comes as a surprise, given the attractiveness of the idea, to learn that the "take-up rate" is tiny. Among scientists, I would guess, less than 10 per cent claim, or at least are awarded, this privilege. At a time when the median age of university dons is relentlessly increasing, when staff turnover is faster than ever before, this fact surely requires further examination, for if we have ever needed rejuvenation before, it cannot be as much as we require it now.

Without having done a proper survey (but SSRC grant applicants place note) there seem to be fairly limited numbers of students in the low numbers of those who would like to go, but find themselves frustrated for some reason. The lofty sentiments of my own university "wishes to encourage staff" are often deflected at a somewhat lower level. Professor B. is with a staff of 22, has decided that only one of them should be absent at any given time—of course these would otherwise be claiming their privilege.

Professor D. has decided that any one can go on leave provided they are not in the teaching (surely the basis of regularity and a contradiction of the very idea) or else

be the simple apathy factor—look at all the disruption involved. Why not just plan on as before? And yet, with both science and engineering changing as fast as ever, if not faster, the need for "re-reading" (horrible Americanism) is greater than ever.

Indeed, at a lower level still, we find that despised but invaluable creature "Mr. Timetable" whose main hope in life is that next year's timetable will most closely resemble this year's (with a sabbatical, of course, it will not) and he, too, is anything but pleased to have the extra problems.

In recent years, so few academics have taken their privilege that a vicious circle begins to develop. So unaccustomed is the administrative machine to coping with these more and more on the rare occasion course that would otherwise have been suppressed.

I have intended to show firstly that the sabbatical is a most desirable institution from both an individual's and the corporate point of view. I have suggested that its adoption is so infrequent that without the UGC having to express any views the practice may quietly die, unlike in the Australian situation where sabbaticals were killed off.

What other ideas might supplement or complement the sabbatical? The one most obvious is the temporary translation of the university don into industry. In the tidy mind of the administrator, this is often seen as a straight swap. In practice that rarely works out. Recent articles in "Chemistry in Britain" quoted figures on exchanges. The numbers reported were a fraction of 1 per

cent of university academics and it is clear that the scheme has either been slow to take off or is simply not workable in its present shape.

What must, I believe, be the shape of the future is a university-by-university "rent-a-don" scheme, much as some universities have set up their own "shop-windows" (Industrial Centres). Of course the "rent-a-don" is not the same as sending the same man on sabbatical. But first, it may serve at least some of the same purposes, by exposing the man to new ideas, people, techniques and forcing him to re-think some of his ideas.

Second, it is a source of revenue. This revenue might be used in several ways. It could simply boost the coffers of the university. It could be used to "top-up" the academic's salary, just as a consultancy might. It could be used to finance the extra costs entailed by members of staff, either on a temporary basis or permanently, with the university pooling funds and risks to do so.

Last but not least, it could be used to build a reserve for real sabbaticals so helping visitors to the United States or Europe to defray the extra costs entailed. If we are going to be really free-wheeling, we might even rent out a don at less than cost price, especially to firms who might not be able to pay the full cost. After all, if he is replaced by a younger (and cheaper) man, the university will not be the loser.

The author lectures in the department of chemistry at Salford University.

BOOKS

True or false?

Industrialism and its contradictions

Wearing his empiricism with a difference

Just published
**The 1930s: A Challenge
to Orthodoxy**
John Lucas (ed.)
£8.50

HARVESTER PRESS

Participation in unions

English reader, especially those of the Swedish labour movement and class conflict, and on the political ideas and strategies of the Swedish labour movement which, incidentally, contain no material from the metal workers' survey. (Add.

Thus, in an examination of union solidarity, based on the answers to a single question, he found "very great" differences in his three types of union involvement between workers and managers. The differences were not so marked, differences in their support for the labour movement, based on two questions. Korní tries

dispose of the problem by refraining from referring to their future "socialization" in the workplace and in the local community in order to conclude upon the basis of the survey that as workers grow older "we can expect to decrease among them, while labour movement support can be expected to increase." Studies of the Czech branch could not be held out "hope of such a conclusion, and it is very much upon this question whether the Yugoslav youth will be so keen to participate in the running of workers' concerns as their parents." The author necessarily in the hands of pre-

THE 1980's

Just published
**The 1930s: A Challenge
to Orthodoxy**
John Lucas (ed.)
£8.50

HARVESTER PRESS

Philip Abrams

J. A. Banks

THE 1930's

Just published
The 1930s: A Challenge to Orthodoxy
John Lucas (ed.)
CR 50

...and the fact that the *Journal* is a journal of the American Psychological Association, the largest and most influential organization in the field of psychology, adds to the journal's prestige and makes it a must-read for all psychologists.

HARVESTER PRESS

SECRET

BOOKS

The uneventful life of the novelist

A Portrait of Jane Austen
by David Cecil
Constable, £6.95
ISBN 0 9462 4003

Jane Austen is a peculiarly difficult subject for biography. An uneventful life, records obliterated by an over-zealous sister and a curious deep-seated shyness are obvious obstacles. Others, less tangible, two perhaps even more daunting. The creative process in her seems when it is compared with that in other great writers, to lack deep roots in experience. It is the fruit of observation, intelligence, reflection, but not (to any extent) of impulse, hope and fear. If ever anyone was born into this world without an unconscious mind, it was Jane Austen. What is one to say of someone whose life and letters seem so typical of her family and neighbours, and whose genius can be studied with such unusual completeness in its finished products, her novels? Apart from her favourite books which are easily traced, Jane Austen appears to have no sources.

Lord David Cecil is unusually well equipped to deal with these difficulties. Since the publication of his first book, *The Stricken Deer* nearly 50 years ago, he has always been at his best in biography. His strong historical sense makes an understanding of the milieu second nature to him. And he has a personal sympathy not only with Jane Austen's religion,

and her instinctive insular Englishness, but also (what many of her warmest admirers, including myself may lack) a liking for her bleak, unadorned side and her tough worldly streak.

He does not, it is true, approve so wholeheartedly of this last characteristic that he refrains from a few excuses. When he quotes the notorious passage in the letters about a woman dying in childbirth because she looked at her husband at the wrong moment, he is careful to point out that in general Jane Austen, as we know from good evidence, was unselfish and kindly. Remarks like this were privileged because the sister to whom they were written was a kind of alter ego, to whom unworthy or subversive thoughts could be recounted without reserve or loss of charity. But even with this proviso, I cannot quite agree that the remark is amusing.

But it is true enough that readers of the novels too need to be robust rather than squeamish, and the puncturing of many of our conventional modern pruderies has its value. Lord David is as robust as his heroine, which is saying a good deal.

Lord David is excellent on two most important matters, her religion and her sense of family. He pushes into prominence a passage from the letters where she comments on a silly wife:

I should not have suspected her of such a thing: she stayed for Sacrament, I remember...



The book is illustrated with contemporary portraits, scenic drawings, facsimiles and family sketches. The silhouette above shows Edward, Jane's brother, being presented to Mr and Mrs Knight who adopted him.

and her comment on Sir John Moore's death at Corunna:

I wish Sir John had united something of the Christian with the hero in his death.

They are, as he says, very significant. In each case, we might expect that traits in her character would lead her to comment quite differently. In the first case, her pride in her deep understanding of character, and her honest feminine enjoyment of gossip; in

the second her patriotism, sharpened by her strong affection for and anxiety about her sailor brothers. But always there is an implied hierarchy of values. Religion, however solidly mentioned, is always highest. If we probe, we always strike rock. Remembering this, Lord David is able to make the undramatic progress of her last illness and the final scenes poignant and weighty. At the same time, he does full justice to her resilience and her obstinate humour.

morous turn. So, on the very last, unfinished *Sanditon*, he writes with impressive truth:

As a woman of forty-one in the grip of a mortal disease, she turned for a last inspiration to that irrepressible sense of fun which had stirred her to write a child of twelve.

I particularly liked, too, Lord David's way of handling the formal letters, such as one of condolence to Philadelphia Walter on the death of her father. Admirable that it sounds stilted and impersonal, he yet insists it is important to our understanding, showing both the formality of the period and a natural shyness intensified by family tradition.

When it comes to speculating about the gaps in the record, Lord David is cautious and convincing. He sees her as becoming, like her own Anne Elliot, less prudent and more romantic with time, as if surprised when no longer young at the power the memory of her could have. He ends with a quotation from her favourite nephew, who "did not think of her as being clever, still less as being famous, but a kind sympathetic and amusing". As he rightly says, this marks her exceptional. Any talented person can be extraordinary. To be ordinary, to be good in an ordinary way, and to be a great genius—that is what is truly extraordinary.

A. O. J. Cockshut

Humanist discipline

Selected Essays
by Graham Hough
Cambridge University Press, £7.95
ISBN 0 521 21901 9

This is an unusually interesting book, and despite some reservations I greatly enjoyed reading it. It is not merely a collection of essays: the various pieces exhibit a remarkable overall unity. Taken as a whole, the book is a discussion of topics and themes in the literature of the period from the onset of Romanticism to the advent of the "heap of broken images" which is Modernism.

One of the most impressive essays discusses "Narrative and Dialogue in Jane Austen" and deals with the levels on which, and the modes in which, language operates in *Emma* (regarded not in isolation, but as representative of the oeuvre). On a subject which has prompted so much good criticism during the last few decades it is easy to be otiose, but Professor Hough's study is both deft and fascinating.

There follow two essays on Coleridge, one on Coleridge's poetry, the other, the more valuable, on "Coleridge and the Victorians". The latter piece examines particularly Coleridge's influence on Victorian attitudes to religious belief. It was originally published as Hough's contribution to Basil Willey's *Festschrift* and is, appropriately, much in the Willey mould. It rightly takes Coleridge very seriously, though I have misgivings when I read "However clearly Arnold spoke to his age by producing a more accessible version of Coleridgean apologetics, his attempt is at bottom a less serious thing than Coleridge's".

"Coleridge and the Victorians" prepares the way for "The Natural Theology of *In Memoriam*", which, though originally published in 1947, is still eminently worth reading even in the present context, it goes over some of the ground that has already been covered by the Coleridge essays, the most valuable are those on Yeats and on the *Four Quartets*, though that on "Dante and Eliot" is by no means without interest despite some errors in the Italian. But I have not so far mentioned the first essay in the collection, "Criticism as a Humanist Discipline". In this Hough trenchantly

restates his known views on the condition of English literary culture today, and particularly on the anthropological literary culture of the educational world. The demolition work is well done. But the positive side of the essay is disappointingly confused and weak. Assuming that the young want their teachers to "insert" the literature of the past "into the living fabric of the present", Hough suggests that they look up and are not fed. What we need, in Hough's view, "is a clearer methodology, a method capable of giving a genuine sense of direction to intellectual development", and "a far closer engagement with social reality". I confess I am not clear what "methodology" implies here. Are we being asked to formulate an integrated system of procedures for "doing" literary criticism? Certainly students regularly ask for this; but does Hough believe that we should give it? Or does he practice side by side with the practice of criticism, a more radical and more clearly articulated theory of what we are doing and why? This, possibly; but any practising teacher knows the danger here—namely that the theory will be used in attempts to "get the answer right" by students, and might be acquiring the specific practical skills of the critic.

Nough's second wish—for "a far closer engagement with social reality"—he believes might be realised by apparently similar means: "Criticism should be able to give some intelligible account of the relation of literature to the social order". There is a methodology for this, and so far as I know there is only one. To think of this subject at all requires some application of Marxism.

This seems to me a remarkable assertion. Did no one think about these matters before the emergence of Marxism? What about Raymond Williams, whom Hough regards as a non-Marxist and to whom he pays a compliment in passing? (And what about all those Marxist critics about whom Hough finds deficient?)

The truth seems to be that in this essay, once the demolition work is over, Hough falls back on looking for some abstract system through which shall guide us through our problems and confusions. A system to be "applied" to literature, of those who hope and which of course does not?—to be "assured of no rational certainties". Here I can accept more than ask: is this an acceptable model for genuine critical activity and the study of literature?

Mark Roberts

Farming between the wars

The Agrarian History of England and Wales
Volume VIII: 1914-1939
by Edith H. Whitham
Cambridge University Press, £12.50
ISBN 0 521 21780 6

It was H. P. R. Finberg, then head of the department of English local history at University College Leicester, who was the moving spirit behind *The Agrarian History of England and Wales* and its first general editor. He secured the support of a distinguished advisory committee of agriculturalists and historians and wrote the first volume (in respect of both period and publication). At the time of his death in 1974 one other volume (by the present general editor, Joan Thirsk) had appeared, but work was in hand on all but one of the remaining six volumes—the exception being, surprisingly, for the years 1850-1914, for which there is a wealth of material. The last volume was originally intended to cover the period 1914-1964, but for reasons that are not explained, this volume and the series now terminates in 1939.

Miss Whitham is well qualified to write a contribution on this subject, as a former Gilbert Lecturer in the history and economics of agriculture at Cambridge, and as the daughter of the first secretary of the Agricultural Research Council. She has already written, with Mrs C. S. Orwin, an agricultural history of the period 1846 to 1914 (though for British agriculture as a whole), as well as two monographs on the London milk trade and on beef cattle and sheep for most of the years covered by this volume. She sets herself the difficult task of covering the changing agriculture of this period within the scope of 133 pages, difficult because the period not only includes the First World War and its aftermath, but also the world economic depression, the retreat from free trade in food, the rapid development of agricultural science and the increasing intervention of government in agricultural affairs. During this period, too, the volume of source material has grown immensely—agricultural

returns of increasing complexity, the beginnings of the agricultural economic service, a growing number of official publications (though few so revealing as the vast Blue Books of the nineteenth century) and new journals, magazines and trade papers. One has only to contemplate the difficulty of constructing a contemporary view of English and Welsh agriculture in all their complexity to appreciate the wisdom of deciding to terminate the study in 1939.

The book in essence comprises three cross-sections—in 1914, in the 1920s and in the 1930s (though the chapters containing regional descriptions of the latter periods are entitled "Changes in Farming Practice") linked by discussions of changes in policy and practice in the intervals. Much of the material relates to England as a whole, and the regional analyses are done with a very broad brush. The author sees her task primarily as to give an account of what it felt like to be a landowner, farmer or farmworker in those 25 years and she expects her readership to be farmers and others concerned with modern history. She has sought help from many farmers and from agricultural economists and scientists.

In her objectives she follows the guidelines of the first general editor, who urged his contributors to bear in mind that "the work is intended to be a history, not of processes, trends or problems, but of human beings". Unfortunately, on those criteria, it fails. Although it does, as the author promises, exclude mathematical treatment, it is much more concerned with policies, trends and processes than it is, at least overtly, with the farmer, the farmworker and the landowner. Even when they appear, they are often the exceptional figures—the Sykes, the Chivers, and the like—perhaps inevitably in a period which is often too recent for private papers to be readily available and when only those who write or are sufficiently notable to be written about can add colour to the bare statistics.

This criticism arises, not from any deficiency of the book per se, but from the author's explicit objectives. In fact, it is difficult to see how one could write a book of this

length about this period without paying considerable attention to the development of agricultural policies during the First World War—when the state began to take a direct major interest in agricultural affairs for the first time—its aftermath and the 1930s. Nor can one ignore the technical changes, though in this period these were often incidental rather than dominant. The choice of what to include must always present problems in short books on complex topics and critics must beware of the danger of attempting to rewrite authors' books for them. Nevertheless, the discussion of the work of the Agricultural Research Council, though interesting and understandable in terms of fiscal pride, does seem out of scale when it appears to have had so little influence in this period.

To a geographer, it is incomprehensible that anyone can write about the great variety of farming throughout England and Wales without using some of the numerous cartographic sources—the book does not have a single map or drawing on the wealth of work by geographers, notably in the county memoirs of the Land Utilization Survey which, however variable in quality, do contain a large amount of relevant material for the 1920s. As it is, the regional analyses are based on nine large maps which are themselves far from ideal in the last regional chapter. Again, while the author's obvious desire not to overwhelm her readers with references and footnotes is understandable, it is often not clear how far statements are based on observation, published evidence or the recollections of eyewitnesses.

Nevertheless, the volume is to be welcomed as it fills a gap between the histories of the two world wars (though Lord Murray's volume covers the inter-war period) and is well-written; as befits its publishers, it is remarkably free of typographical errors. No doubt a much longer book could have been written—the material is undoubtedly there—and perhaps Miss Whitham will now build on this foundation to achieve her original objective.

J. T. Coppock

Demolition of the feudal pyramid

The End of the Old Order in Rural Europe
by Jerome Blum
Cambridge University Press, £18.40
ISBN 0 521 05266 2

The liberation of the European peasantry from feudal bonds occurred in some countries little more than 100 years ago. It broke a social system that had prevailed for 1,000 years, and inaugurated what Jerome Blum describes as "a great and unending unfinished social revolution".

The process has not hitherto been analysed as the common experience of all feudal states; rather it has been described only in terms of individual countries and principalities. Jerome Blum here surveys the whole movement from 1700 onwards as it occurred in all continental countries stretching from France to Hungary and Russia, but including Portugal, Spain, and differences in chronology and tactics are set alongside the uniformity in the broad course of events. This is a thoughtful and thought-provoking book. Viewed on this scale, the process of the near-collapse of the feudal system's structure, and the changes within it, were much the same everywhere, and in each country built up a different pattern of events. On one side feudalism was being dismantled by the rising population and the surge of international commerce, while on the other the foundations were gradually being undermined by the peasants, the bourgeoisie, the Cameralists, and the Liberals, winning over the backward intelligentsia to the

side of peasant emancipation. Peasant discontent unrelentingly sapped the strength of the system, but did not automatically create power or will to destroy it. The institutional framework was broken from above by kings, princes, and officials, who issued decrees, leaving lords and peasants with the long, slow task of implementing them. Only gradually did they build up a new relationship, and adjust to the new circumstances.

Jerome Blum's narrative is factual and severe, and only occasionally does he relent and interject some incisive, personal judgment. But when he does, it is profoundly wise and reveals the full breadth of his perspective. Yet one general judgment underlies his book: in fact, clouds its clarity, especially in the first of his three parts, in which he describes the content of the feudal system. This is his assumption that all territories between France and Russia consisted of servile lands. He has to admit exceptions of course, but in the broad course of events, where the free peasantry existed, where the free peasantry existed, and only vestiges of seigniorial justice survived. But he does not clearly identify that they existed beyond saying that they existed on mountains and on poor soils. Thereafter, the tension between these relatively free societies and the highly feudalized societies is the centre of his narrative, and he is at his best when he is at his general trend in the servile lands for their differences is that they were not servile.

It is an oversimplification to as-

ciate all free communities with hamlets or single farmsteads, enclosed land, a pastoral or highly diversified agriculture, a community combined with rural industries, while associating all servile lands with villages, common fields, and grain growing. But this distinction heightens a true contrast, and it does not distort reality any more than does Professor Blum's generally bleak picture of low standards throughout feudalized agriculture. And if one accepts the existence of these two types of rural society in Europe, geographically dovetailed, and economically interdependent, one does not then need to identify south-west Germany, the Swiss Alps, south central France, Westphalia or the Rhine provinces as exceptional examples of the servile system in practice. They were rather societies of free peasants, juxtaposed to the servile but structurally different, and incidentally undergoing more fundamental economic changes in the seventeenth century than did the servile lands. That being so we have to ask what contribution was made by those burgeoning free peasant economies of the seventeenth century towards overturning the stagnant, stratified systems of the servile lands in the eighteenth and nineteenth centuries. Embedded within this book is some striking though discarded evidence.

Nevertheless, the synoptic view of feudalism in Europe at its height and in decline calls for the mastery command of a vast literature, and few if any have the equipment of Professor Blum. His survey commands great heights and wide views.

Joan Thirsk

The English Civil War
Conservatism and Revolution 1603-1649

ROBERT ASHTON

... both courageous and very timely. This book is not only a synthesis of other people's findings (in itself a work of much sweat and more usefulness) but also an original contribution to this exceptionally difficult bit of history."

G. R. Elton *New Statesman*
Cased £10.00 Paperback £4.95

Shakespeare
The Poet in his World

M. C. BRADBROOK

"Many university tutors in English, reading this book, will wish that they could informally converse with their pupils with anything like the unfailing resource and élan commanded by Professor Bradbrook as she writes."

J. I. M. Stewart *Sunday Telegraph*
£6.95

The Chinese Experience

RAYMOND DAWSON

A welcome addition to the History of Civilization Series. The author traces the constant features of Chinese civilization from politics to philosophy.
£12.50

The Natural History Of
The Whale

The World Naturalist Series

L. HARRISON MATTHEWS
Dr Harrison Matthews charts and explains the many advancements made in the study of cetology in the last fifty years.
£12.50

Consumers And The Law

ROSS CRANSTON
Law In Context Series

The most comprehensive and up to date analysis of consumer protection law in Britain today.
Cased £15.00 Paperback £7.95

Work, Urbanism And
Inequality

UK Society Today
Editor PHILIP ABRAMS

An analysis of the key changes in the British society since 1945.
Cased £12.50 Paperback £5.95

The UK Economy
A Manual of Applied Economics
7th Edition

Editors A. R. PREST
and D. J. COPPOCK

A thoroughly revised edition of this classic introductory text incorporating accurate facts and figures up to April 1978.
Cased £6.50 Paperback £4.50

Weidenfeld & Nicolson

Milton's visual imagination

Milton's Imagery and the Visual Arts: Iconographic tradition in the epic poems
by Roland Mushat Frye
Princeton University Press, £25.00
ISBN 0 691 05349 4

Against the commonsensical objections of the uninitiated—how could the visual arts matter to a blind man? a Puritan? a bookish man? an Englishman?—Roland Mushat Frye in *Milton's Imagery and the Visual Arts* establishes the case that Milton's descriptions draw upon the vocabulary of motifs present in the traditional iconography of Renaissance and Baroque art. He posits an interaction between literary works which feed the imagination of visual artists and visual images which in turn stimulate the imagination of writers.

Professor Frye is not concerned to identify direct sources for Milton's descriptions nor to pursue direct influences by Milton on later artists. He wishes, rather, to show how the common lexicon of visual motifs Milton would have known assisted him in "seeing" his epic universe. Of course the books that inspired painters inspired Milton too (the Bible and classical and Renaissance epics in particular), as Frye well knows. How much in this literary and pictorial give-and-take can be surely labelled the flow of paintings into poems rather than the persistence of literary texts in both paintings and poems? Professor Frye is quite sure he can tell and documents motifs huge in this handsome and expensive book.

More often than not, Frye is persuasive. Occasionally doubts well up, as in the tracing of Satan's "tears such as angels weep" to a sculpture by Neoclassical described by Frye as maudlin and saccharine rather than equally, say, to a speech by Isabella in a play by Shakespeare which is neither maudlin nor saccharine. Why should a poet be more inspired to "vision" as Frye puts it, by had visual than a fine poetic image? But the balance of the steady, patient and usually elegant argument goes to confirm Frye's thesis.

Professor Frye has, however, a further purpose beyond establishing Milton's indebtedness to art. He seeks "to marshal visual resources which will enable us to read the epic poems with greater awareness and sensitivity." Since Milton never ceased to admire poetry "where more is meant than meets the ear" or the eye, stress on the scenic sometimes deflects

attention from a major Miltonic effect to a lesser one. Thus Frye rightly invites us to look at paintings of armoured angels and demons locked in chivalric warfare in reading Books V and VI of *Paradise Lost*, to examining the illustrations to early printed Bibles which continue the tradition of armoured angels, to observe the single combat of Michael and Lucifer in Tintoretto, Rubens and others. All these suggestions help to enrich and clarify our sense of the war in heaven. But Frye then suggests that that warfare is epitomized in the visual image of a physical encounter between Michael and Satan, whereas for most readers even stronger visual and conceptual effects centre on Milton's personal angel Abdiel, first leaving the Satanic camp—

And with retorted scorn his back he turned him, and with swift destruction doom'd.

—then arriving at Michael's camp to second with arms the courage and truth he had shown in words. For the picture of Abdiel, Milton's angelic hero, is not a mere analogy, but the reader sees Abdiel, and understands that he conveys something very central to Milton, the individual witnessing to truth against all numerically superior falsehood. In the war in heaven Abdiel strikes the first blow against Satan, drives him reeling back 10 paces, and imprints a powerful conceptual image on our minds. Only then does Michael brandish his sword "with huge two-handed sway". Abdiel is the exemplar and Michael pictorial; the exemplar matters more to Milton.

By way of a crisp and decisive introduction, Professor Frye traces the effects upon later critics of the opinions of Johnson, Coleridge and Eliot that Milton saw nature through the spectacles of books, was not a picturesque but a musical poet, and suffered from "a hypertrophy of the auditory imagination at the expense of the visual and tactile". He reminds us that those who become blind, whose mature continue to see in the mind's eye. He refurbishes Oliver Cromwell's reputation as an art collector (news which will perhaps go down better at Balliol than in Ireland) and traces Milton's exposure to the visual arts on his Italian journey, helpfully recalling the first essay of the Columbia Manuscript of Milton papers, "Of Statues and Antiquities".

There follow five extended treatments of "The Demonic World", "The Heavenly World", "The Created World", "The Human

World" and "The World Redeemed". (The book contains 269 illustrations; about 110 show the demonic world, about 40 the heavenly, about 70 the created and human worlds and another 30 or so the world of paradise regained, although there is considerable overlapping.) The most judicious of these chapters are those dealing with the created and human worlds.

In Milton's presentations of the created and the human world, as Frye realizes, the vocabulary of the visual arts is not the most obvious language upon which the poet need draw. Nature and science join hands as well in what Leland Ryken has called "conceptual images". Frye does justice to all of these. Milton's encyclopaedism in the description of creation and the dialogue on astronomy is matched by Frye's encyclopaedic knowledge of Milton's scholarship. Sometimes we learn what can only amuse us, that, for example, Milton gave Adam a "parted forelock" quite unlike the hairline of human heroes in Renaissance and later art but precisely like the hairline in Lely's portrait of Cromwell and Falstaff's of Milton himself. (I assume this information amuses Professor Frye, but I am not sure.) More often we are invited to consider the visual content of central episodes together with their psychological, spiritual and conceptual content. In these central sections our attention is not deflected from the important onto the unimportant but all Milton's selectivity, eclecticism and poetic control are made manifest. The analysis of the imagery of *Paradise Regained* could not be bettered.

Beyond the intrinsic interest in the account of Milton's reliance upon the iconographic tradition, a final value of this book is the insight into which Frye reads. That he has visualized motifs so distinctly as to track their analogues valuably draws our attention to Milton's decidedly pictorial art. Scene upon scene—the blough Eve bears to Adam and the garland that falls from his hand, the emerald shaking themselves free from the earth or passing before Adam to pay fees and receive their names—becomes in Frye's description truly seen. In the last analysis, the paintings adduced send us back to the epic as poetic art. No Miltonist could hope to do more than effect such a final self-effacement.

Mary Ann Radzinowicz

BOOKS

The greatest number

Numerical Methods for Unconstrained Optimization: an introduction by M. A. Wolfe
Van Nostrand Reinhold, £18.00 and £8.50
ISBN 0 442 30214 2 and 30217 7

Optimization is concerned with estimating least (or greatest) values of a function with or without constraints on its variables. Since about 1960 there has been an increasing volume of literature devoted to the subject, indicating its importance in a wide variety of scientific, industrial and engineering fields.

This book is specifically concerned with unconstrained optimization and particularly with "the behaviour of numerical methods when applied to strictly convex quadratic objective functions". It is intended as a text for "final-year students of mathematics and statistics and graduate students and research workers whose work requires the numerical solution of optimization problems". Exercises are given at the end of each chapter but no solutions are supplied.

The preoccupation of the work with quadratic functions could give the reader a blinkered view of the subject unless he is also exposed to the wider aspects of optimization but it is only fair to say that the main stream of work in optimization in the last decade has been concerned with convex analysis. I think, however, that this has resulted in stagnation in the subject and that some new, imaginative ideas are needed for progress.

The book begins with a brief introduction of the general nature of optimization through four problems. A wider discussion of the different areas of optimization would have been useful at this point, with mention of topics such as linear programming and integer programming. There follows a collection of fundamental results in linear algebra and analysis which are needed subsequently. This is followed by a more rigorous treatment of the subject in part, for example, when dealing with Lagrange multipliers.

The second chapter starts with a very general descent algorithm and its convergence and then considers line searches, particularly quadratic and cubic interpolation techniques, in detail. I found this treatment rather restrictive and would like to have seen some work on general

minimisation search including the interval reduction methods.

Chapter three covers steepest descent and Newton's method. The plan (which I like, as in the other chapters), is to give algorithms, discuss their theory, and then evaluate their numerical performance. Naturally Newton's method and its safeguards and modifications (with and without computation of the eigenvalues of the Hessian) gets the fullest treatment. Numerical computation of the Hessian is also dealt with.

Techniques involving the use of conjugate directions are discussed in chapter four. A general conjugate direction algorithm is proposed and its properties are derived. Then the various methods of generating conjugate directions are described together with the optimization algorithms to which they give rise.

In many optimization problems only the continuity of the objective function can be assumed, in which case resort must be had to the "direct search" methods for which derivatives of the function are not required. Such methods are dealt with in chapter five. In particular, accounts are given of Nelder and Mead's simplex method and Powell's method. It seems to me that the author's version of the simplex method differs somewhat from the original version and I also felt that a wider coverage of direct search methods including, say, Rosenbrock type methods and the method of Frank and Jeeves should have been included.

Chapter six deals with the important quasi-Newton techniques. The treatment is up to date and summarizes much important theory from (reasonably) current literature. All the main methods together with the general, underlying analysis of them are covered. The chapter concludes with an account of recent work, to which estimates of the Hessian rather than its inverse are used.

When the performance index to be optimized is a sum of squares, certain special properties can be exploited and the final chapter is concerned with least squares problems. For linear least squares Golub's method is given and in the general, nonlinear case the Gauss-Newton method and its recent developments are fully treated.

Despite some minor general reservations I find this text a good, thorough treatment of the methods it sets out to describe and think it a valuable addition to the literature on the fascinating subject of optimization.

Colin Storey

Wave saturation

Waves, Atoms and Solids by D. A. Hase
Longman, £6.95
ISBN 0 582 44374 9

All physics lecturers faced with a course leading from the introduction of Schrödinger's equation through to the current-voltage characteristics of a p-n semiconductor junction have available to them an extensive range of established text books covering that well-trodden path. Each and every such lecturer is then in a position of assembling his lecture notes, distilled from that range of texts, into book form and seeking their publication as yet another solid state textbook.

This process could clearly lead to saturation of the market with a plethora of rather similar texts and this book is similar to many others. By and large, it follows the conventional trail from atomic structure, through structure and bonding in solids, to the thermal and electrical properties of the solid and thence finally to the properties of semiconductors. None of the material is novel in any way and should any lecturer be concerned by curriculum to the coverage of his specific subject of study, then this book

would suit his course. However, several other books of similar range are available, such as Greig's *Electronics in Metals and Semiconductors*, or the old classic by Went and Thomson, *Physics of Solids*, both incidentally available at a lower price.

In general, the content of the book is an accurate representation of existing texts, but in his discussion of energy bands in metals the author slips very glibly from discussion of momentum space with no discussion of the need to use an applied magnetic field to obtain an electron orbit in momentum space, the same omission occurring in his discussion of open and closed orbits in a two-dimensional square lattice. All in all, this text is a rather undistinguished addition to an already well-documented subject. What would be a valuable addition would be some new approach to the teaching of solid state physics, based on the use of simple models of solid state solids which for years have been the theoretical stamping ground in textbooks, totally unsupported by any experimental demonstration, or on the chemical bond approach which has been developed by Phillips and Van Vechten and using a framework of reference and a language quite distinct from that of the existing range of solid state textbooks.

Alexander Griggs

Beauty of abstract algebra

General Theory of Lie Algebras (two volumes) by Yuzé Chow
Gordon & Breach, £40.00
ISBN 0 677 03890 9

Although the theory of Lie algebras originated as a method of solving problems about Lie groups, it can be presented as a subject in its own right. In fact one of the most beautiful branches of abstract algebra, and the classification theorems of Cartan never fail to astonish by their completeness and by the virtuosity of their proofs which seem to be inevitable and yet, at the same time, full of surprises. Countless graduate courses have been given round the world on this attractive topic, and several good books, with a fairly standard content, have resulted from such courses. In judging the latest addition, one naturally looks for novel features or improved exposition.

The most obvious difference from existing texts is that this work is in two volumes. Do not be misled: it owes its length not to an encyclopaedic coverage of the subject but to the method of writing. It is reproduced photographically from a typescript which is so widely spaced that there are frequently only 10, and rarely more than 20, lines to a page.

Vector value

Vectors in Three-Dimensional Space by J. B. H. Clisholm
Cambridge University Press, £15.00 and £4.95
ISBN 0 521 21832 2 and 29289 1

"Of the making of books there is no end", but when the same publisher lists three books on vectors in a year one's first reaction is to call enough. It would have been a pity if this had been done before Professor Clisholm's book came along.

Although it is particularly angled to mathematics students, whereas Kemmer's *Vector Analysis* last year described itself as "a physicist's guide" and Sheriff's *Vector Fields* developed the subject "through its applications" the three are complementary. Moreover, Clisholm and Kemmer both go to a lot of trouble about logically complete foundations, so that the subject is not relegated to a mere "methods" course. But whereas Kemmer laid his foundations geometrically (and generated his own simplified differential geometry for the purpose) Clisholm grounds his in linear algebra (and provides a guide to the necessary matrix algebra).

The choice is one of personal taste; the geometrical approach is intuitively pleasing, but the way in which an algebraic structure arises is slightly mysterious. The clarity of the algebraic approach over this point is compensated by the mystery of why all this should be. This point is taken by Clisholm, who spends a great deal of time motivating a careful and exact axiomatic approach.

The usual subjects are covered, up to simple integral theorems. (The approach is to regard differentiation as primary and integration as in some sense an inverse operation.) Most sections have a selection of straightforward problems, and the book would be very suitable for independent study as well as a text for a first-year course.

C. W. Kilmister

In 1985 October 6 Malcolm Vale was credited with the authorship of *The Gentleman's Word*, which is a book of letters. We apologise to both parties for this confusion. Malcolm Vale's books include *Plenty, Charity, and Literacy* among the others. Geny 13.10.1985.

In view of the author's background in engineering and physics one might expect a treatment directed towards applications, but I can detect no such bias. If anything, Professor Chow has outdone the pure mathematician in the abstractness of his approach. Some readers will be irritated by his insistence on using a different symbol for each operation occurring in a complicated algebraic structure. The result is more confusing than helpful, especially when (as in the very first definition of the book) symbols are misprinted. The style of exposition seems generally to be more suited to an introductory course on abstract algebra than to a course such as this which, if it is to be appreciated, must build on a thorough understanding of rings, modules and the methods of linear algebra.

The work as a whole offers a good choice of material presented in a self-contained manner with a conscious attempt to show the historical development of the subject, but greater attention to accuracy of statement and choice of notation would have made it more readable.

Volume one contains general theorems on solvability, nilpotence and semi-simplicity of Lie algebras and the rudiments of representation theory. There is

also a chapter on universal enveloping algebras and the Poincaré-Birkhoff-Witt theorem in which the author unfortunately misleads the unwary by introducing a nonexistent linear map from the enveloping algebra to its associated graded algebra. In several places in this volume there is sufficient indication of the special conditions attached to the basic field, making it difficult to use the book for reference.

Volume two contains the classification of split semi-simple Lie algebras over a field of characteristic zero and their representation theory. There is a very thorough treatment of the construction of simple Lie algebras, both classical and exceptional, including details which many other authors leave to their readers. There is also a chapter (really an appendix) on the cohomology of Lie algebras, starting from scratch with an introduction to categories and homological algebra. The applications are to extensions of Lie algebras and Levi's decomposition theorem.

The work begins with a very comprehensive list of symbols and abbreviations used, and ends with an adequate bibliography and index.

P. J. Higgins

Getting it together

A Course on Group Theory by John S. Rose
Cambridge University Press, £12.00 and £4.95
ISBN 0 521 21409 2 and 29142 9

Group theory is now studied by almost all students on mathematics degree courses and there are many introductory books on the subject. This new book will serve as an excellent link between these and the more advanced texts. Although Dr Rose has avoided finiteness restrictions wherever possible, I think it is fair to say that the flavour is definitely finite. It is intended for advanced undergraduate and beginning postgraduate students and as only the latter are likely to penetrate to the last few chapters, their attention will naturally be directed to the finite theory.

A small amount of knowledge is required at the outset but otherwise, with a few exceptions, there are no prerequisites. There are several important features, both pedagogical and mathematical. Regarding the former, the student is required to take a very active part in his instruction because about one quarter of the 679 exercises contain results that are needed in the main text. The exercises are numbered consecutively and are sprinkled liberally throughout the book. Also, even in the early stages, the student's interest is stimulated by the presentation of material to be presented later on by lucid references to topics of current research. The bibliography is larger than in most textbooks, containing about 40 books and over 100 articles in research journals.

Mathematically, the main feature of the book is the emphasis placed on the concept of group actions on

sets and groups. This not only enables the student to see the sort of ways that groups occur in mathematics, but also enables the student to present Sylow's theorems and the theory of the transfer in a novel way due to H. Wielandt.

After the first four fundamental chapters there is an account of some aspects of the rich and varied theory of finite groups, and the theorem of Brauer and Fowler is proved, giving a bound for the order of a simple group of even order in terms of the order of the centralizer of an involution. Rose explains how this result has been used to discover some finite simple groups. Three chapters deal with the normal structure of groups which cover such topics as series of subgroups, nilpotent and soluble groups, direct and semi-direct products. An unusual proof, due to Feit, of the structure theorem for finitely generated abelian groups is included.

The last two chapters deal with the interplay between the normal and arithmetic structures of groups. The theory of Galois groups is discussed with applications to various splitting theorems. For instance, the fundamental Schur-Zassenhaus result that a finite group splits over a normal Hall subgroup is proved. Most of the last chapter is concerned with finite soluble groups and conditions that imply solubility. The exposition is of a high standard throughout and he takes great care from the beginning to ensure that the student has a clear understanding of the basic concepts. There is no doubt that this book is a most valuable addition to the existing texts.

T. E. Stanley

Among this week's reviewers

Philip Abrams is professor of sociology at Durham University; Stewart Asquith is in the department of criminology at Edinburgh University; A. Banks is professor of sociology at Leicester University and his books include *Industrial Participation*;

Owen Chadwick is Regius professor of modern history at Cambridge; A. O. J. Cockshott is G. M. Young lecturer in nineteenth-century English literature at Oxford;

J. T. Coppock is professor of geography at Edinburgh University and author of *An Agricultural Geography of Great Britain*; James Cornford is director of the Outer Circle Policy Unit; Alexander Griggs lectures in physics at Sussex University and is author of *The Superconducting*

P. J. Higgins is professor of pure mathematics at Durham University; C. W. Kilmister is professor of mathematics at King's College London; Stephan Körner is professor of philosophy at Birkbeck University and author of *Experience and Conduct*;

Anthony Manser is professor of philosophy at Southampton University; Mary Ann Radziszewski is fellow of Girton College, Cambridge;

Mark Roberts is professor of English at Keele University and his books include *The Tradition of Romantic Morality*; Alan Ryan is fellow of New College, Oxford; Joan Thirkil is reader in economic history at Oxford; W. H. Walsh is professor of logic and metaphysics at Edinburgh University.

Getting the Tory straight

A History of the Conservative Party, volume one: The Foundation of the Conservative Party 1830-1867 by Robert Stewart
Longman, £12.00
ISBN 0 582 50712 X

Over the last 30 years a great deal of work has been done on Victorian Conservatism: handsome biographies, penetrating studies of particular episodes, even some attention to the evolution of policies, all embedded like archaeological treasures in a debris of articles and monographs. It was certainly time that someone excavated the mound and tried to establish a general interpretation.

I doubt whether as much or as good material is available for the successor volumes in this series, but Dr Stewart has set an excellent example of how to do the job. Writing the history of a party is not an easy matter: there has to be enough general political history to provide the context; the development of one party is incomprehensible without a knowledge of its rivals; there is a difficult balance to be struck between the immediate concerns of party politicians and long-term changes in the political landscape. Dr Stewart handles these problems admirably and the first and most important virtue of this book is the sparseness of its proportions.

Dr Stewart understands the dilemmas of leadership, the clash of personalities, the intricacies of parliamentary management, without allowing them to dominate his account. He has a short way with big philosophy and without debasing his heroes down to size; in his austere and detached style he gives personality its due, but does not let it dominate the situation. In his discussion of Derby's leadership, for instance, eccentricity plays a part but the essence of Derby's dilemma has little to do with his personal indifference to office. The question was how to lead a party which was the largest and most powerful in the House of Commons but never a majority and whose constituency forbade the leadership from making overtures to other sections of the community and particularly to those last leaders in Parliament, the Peelfites, whose return would have made possible a respectable cabinet.

The two great changes which Conservatives had to accept after 1830 were the decline of the Crown and the decline of the landed interest. Under Peel they were ready to embrace party government as the central fact of the constitution, but the corollary: that the party must move with the times and accommodate new and expanding interests, if it was to command the secure parliamentary majority which party



Disraeli as "Ape", reproduced in Robert Rhodes James's *The British Revolution: British politics 1830-1930*, now available in a one-volume paperback by Methuen at £7.50.

government necessitated. The Corn Law crisis symbolized the refusal of the majority of Conservatives to compromise their defence of the landed interest, the long period out of office in the 1850s and 1860s was a more or less conscious decision to be genuinely conservative and to avoid those victories—Catholic emancipation, the repeal of the Corn Laws and the second Reform

BOOKS

Act—which, as Dr Stewart aptly concludes, "were necessarily defects".

Dr Stewart thus lucidly accounts for Conservative acquiescence in the Palmerstonian interregnum but does himself puzzle that party loyalists should have remained so persistent when they bore so little relation to the realities of government (echoes of Mr Callaghan as the host "Tory Prime Minister" suggest). I think this may partly be explained, as Dr Stewart himself suggests, by habit and inertia—Palmerston himself could not be bothered to change parties when he could do nothing equally well in the company of old friends—but also by reference to what was happening in the constituencies, where gradually through the 1850s new party alignments were being forged which only emerged on the parliamentary scene after the second Reform Act. On the Liberal side this process has been illuminated by Professor Vincent, recent work on city politics suggests a corresponding development among Conservatives.

Dr Stewart rightly emphasizes the continuous development of party organization through the 1850s: much of what has hitherto been looked upon as a reaction to the second Reform Act in fact anticipated it. In the same way I suspect further investigation of voting patterns will reveal changes in the significance of party for the electorate and the growth of an alternative Conservative constituency, which will make Disraeli's abandonment of defensive Conservatism in 1867 seem a less abrupt and dramatic departure.

Dr Stewart is more than a shade disdainful of psephology and treats its products with caution. Such conclusions as he ventures on elections seem to me shrewd and his use of local studies to examine the relations of MPs and constituencies is excellent. His concentration upon the parliamentary party leads, however, to a neglect of those elements of conservatism in the country that were not represented in Parliament but with whom the future lay: urban conservatism remains an unknown quantity. It is heartening to see the mine of monographs effectively exploited, and the material combined with the fruits of Dr Stewart's own research on the parliamentary party and central organization. It is equally heartening to find a political historian who takes measures as seriously as men and allows due weight to the importance of ideas in politics.

There are no startling conclusions or revolutionary interpretations, but by its combination of shrewdness, clarity and balance Dr Stewart's book sets a new standard for future work on the Conservative party and mid-Victorian politics. It will rightly become a standard work.

James Cornford

Mementoes of battle

Utilitarian Logic and Politics: James Mill's Essay on Government, Macaulay's Critique and the ensuing debate edited by Jack Lively and John Rees
Oxford University Press, £7.50
ISBN 0 19 27198 0

Every schoolboy knows that the most damaging setback experienced by the Utilitarians was T. B. Bentham's article in the *Edinburgh Review* of 1829 which utterly demolished James Mill's *Essay on Government*.

It began with the observation that James Mill "is an Aristotelian at heart", a century, born out of its time, who has written "an elaborate treatise on Government, from which, but for two or three pages, it would not be possible to say that the author was aware of the existence of any other men." And it ended with the dismissive conclusion that "the Utilitarians are a set of shallow, self-interested, and self-satisfied men, and the greatest happiness of the greatest number, is but a poor

employment for a grown man, it certainly hurts the health less than hard drinking, and the fortune less than high play; it is not much more laughable than phrenology, and is immeasurably more humane than cock-fighting."

Jack Lively and John Rees, who have here reprinted Mill's *Essay*, together with Macaulay's attack, Parnett Thompson's defence of Mill, and Macaulay's response to that defence, do not really dissent from the general view that the encounter, in which the party appeared, but of both the philosophical and the political implications of Mill's *Essay*.

The editors largely agree with Macaulay: but Mill's guiding assumption that men are governed by self-interest is a little false, and the Utilitarians' view of the moral character of man is a little too narrow. They point out that Mill had a confidence in the new science of economics which was thought to be quite unwarmed even by Ric-

ardo, and suggest that it may have been this enthusiasm that misled Mill into thinking that the "old interest axiom" was both a matter of experience and utterly beyond dispute. They agree, too, that Mill's views on the extent of the natural identity of interests are unappealing, though they are cooler than Macaulay's, whose comment on Mill's claim that women did not need the vote, because their interests were identical with those of their husbands or fathers, is justly famous. Without adding one fact which out of the trouble to perplex the question by one sophism, he placidly dismisses away the interests of half the human race.

I suspect that what most readers will find most useful, however, will be the discussion of the different views on representation held by the Philosophic Radicals on the one side and the orthodox Whigs on the other. Although their account is necessarily grossly introductory, given the space they have, it is done with a clarity and vigour which give the most important student of political theory of the right track.

Alan Ryan

Constitutional state

The Development of the Modern State by Giofranco Foggi
Hutchinson, £7.95 and £3.95
ISBN 0 09 133180 3 and 133181 1

It is understandable that a sociologist should write. The organization of my argument as a sequence of typological constructs puts it at variance with a properly historical account. . . . The ideal types I employ should not be treated as explanatory devices in their own right. . . . Thus the model states I describe are introduced to make the process more intelligible; they do not themselves account for it.

While it is possible both to disagree with and regret the methodological approach used in this book on the grounds that the struggle to fit the material into the model does not assist clarification, one is compelled to applaud the wealth of historical knowledge which is displayed. In the main body of this book Professor Foggi gives a most scholarly history of the evolution of the modern state from the feudal system, through the late medieval *Ständestaat* and the absolutist state, to the nineteenth-century constitutional state and then to the modern state system. The wide range of material, much of it European origin (and not available in English), together with the very full notes and excellent index will be helpful to many students.

One wishes that the author had felt able to say something about the

role of the individual and the maintenance of individual freedom in modern society. His analysis of the role of the contemporary state is very much to the point when he writes in the final chapter:

Many new administrative agencies arise outside the framework of ministerial organization and even in formal terms are not easily held accountable to parliament through its right to question ministers. Paradoxically, the gigantic growth of public revenues and expenditures makes parliamentary control more necessary than ever but also increasingly impossible; the bewildering size and complexity of budgets and other accounting instruments both demand and prohibit parliamentary oversight. Moreover, the legislative overload straining the working capacity of most parliaments reduces the amount of time available for monitoring activities.

At this point the author would seem to be moving towards an acceptance of Lord Hailsham's description of the "elective dictatorship" and towards that of those who believe that the preservation of British freedom will necessitate the adoption of a written constitution. It is to be hoped that like neither of his distinguished colleagues, Professor Fenn of Birmingham—author of the recently published book *The Disease of Government*—Professor Foggi will soon feel able to advance from the role of academic analyst to that of practical participant.

K. W. Watkins

Conservative thought

The Politics of Imperfection: the religious and secular traditions of conservative thought in England from Burke to Thatcher by Anthony Quinton
Faber, £5.95
ISBN 0 571 11285 4

This is not a book about the thinking of the Conservative Party but an essay on conservative attitudes to religion but whose political aspects are certainly owed nothing to religion, and in Hume's case conservatism was married to hostility towards religion, at least as commonly practised.

If reverence for established customs and institutions is a necessary part of conservatism, it is a matter for consideration how best to free conservatism from any necessary attachment to religion. It could answer that reverence for the past only means attachment to the Church, not to religion, and that conservative philosophy only means attachment in the sense of Lord Eldon, like a flying buttress, proping but always outside. For other reasons he would not like this argument, but if so, the relationship between non-religious conservatism and reverence for established institutions needs explaining further.

This raises the fundamental difficulty about the theory propounded in this essay. The conservative philosophy turns out to be a wish—to preserve what is good in the past but always adjusting to the present, preferring practitioners to theorists, taking society as a whole and not as a collection of individuals. What is missing is any moral principle in the philosophy. In any contrast with socialist philosophy, Mr Quinton's conservative would lose without a battle; because moral ideal will always conquer a movement which catches "abstract" axioms because they are abstract. For whatever aim the soldiers in the English Civil War really fought, they had to think that they fought for religion, because only ideals could make them fight.

The book ends by discussing the theories of Michael Oakeshott. Those of us who were long ago the privileged members of Oakeshott's seminar on political philosophy, and who puff and pick at his theory of the "little platoons" as we wonder what this elusive Ariel meant, will still find a little after reading Mr Quinton's analysis. But amid these thought-provoking discussions, it is a pity that this book is so difficult to read, and more, is better than that, just because you want to argue with it all the way.

Owen Chadwick

Polytechnics continued

KINGSTON POLYTECHNIC

Applications are invited for

HEAD OF SCHOOL OF GEOGRAPHY

BURNHAM HEAD OF DEPARTMENT GRADE VI £9,642-£10,602 inclusive

Further details and application forms (to be returned as soon as possible) from Academic Registry, Dept. AO, Kingston Polytechnic, Penrhyn Road, Kingston upon Thames, KT1 2EE. 01-648 1366.

CITY OF LONDON

POLYTECHNIC
SIR JOHN CARR SCHOOL
OF ART

Applications are invited for the post of Head of School of Art. The successful candidate will be responsible for the overall management of the School of Art, including the recruitment, supervision and development of staff, and the provision of a high standard of education and training for students. The candidate should have a minimum of 10 years' experience in a similar post, and a degree in Art or a related subject. The salary is £10,602-£12,102 per annum, plus pension and other benefits. Applications should be sent to the Director of Education, City of London, 100 Old Broad Street, London EC2M 4JH.

COVENTRY

THE LANCET
POLYTECHNIC
ASSISTANT SUBJECT
(APPLIED SCIENCE)

Required: A GRADUATE with a minimum of 2 years' experience in the field of Applied Science, preferably in the field of Mechanical Engineering. The successful candidate will be responsible for the overall management of the Applied Science Department, including the recruitment, supervision and development of staff, and the provision of a high standard of education and training for students. The salary is £10,602-£12,102 per annum, plus pension and other benefits. Applications should be sent to the Director of Education, Coventry Polytechnic, 100 Old Broad Street, Coventry, CV1 1JH.

TESSIDE

THE POLYTECHNIC
DEPARTMENT OF CIVIL AND
STRUCTURAL ENGINEERING

Applications are invited for the post of Lecturer in Civil Engineering. The successful candidate will be responsible for the overall management of the Department of Civil and Structural Engineering, including the recruitment, supervision and development of staff, and the provision of a high standard of education and training for students. The salary is £10,602-£12,102 per annum, plus pension and other benefits. Applications should be sent to the Director of Education, Tessa Polytechnic, 100 Old Broad Street, Tessa, CV1 1JH.

Colleges and Institutes of Technology

Lothian Regional Council

NAPIER COLLEGE OF
COMMERCE AND TECHNOLOGYLECTURER A IN
CIVIL ENGINEERING

Salary on scale £4,029-£7,110 (Bar)—£7,638

to lecture in Civil Engineering to Diploma and Certificate courses. Applicants should possess an Honours degree and preferably should have had some site experience.

LECTURER A IN
ILLUSTRATION PROCESSES
AND GRAPHIC REPRODUCTION

Salary on scale £4,029-£7,110 (Bar)—£7,638

to teach Higher Diploma courses in Printing and Publishing and Photography in the above subjects. Previous industrial and teaching experience in printing or publishing is essential. Applicants should possess a degree and/or equivalent professional qualifications.

Application forms and further particulars from:
THE ACADEMIC REGISTRAR
Napier College of Commerce and Technology
Colinton Road, Edinburgh, EH10 5DT

sandwell

Metropolitan Borough Council
DEPARTMENT OF EDUCATION

Warley College of Technology

Principal

Applications are invited for the post of Principal of the above College, which is in group 5 (group 6 anticipated at next review) and has five departments: Education, Personnel Section, P.O. Box 41, West Bromwich, West Midlands B70 8RG.

G. A. Brinsdon,
Director of Education.

Colleges of Higher Education

GWENT COLLEGE OF HIGHER EDUCATION

Faculty of Art and Design

Senior Lecturer/
Course Director in Fashion

Salary £6,951 to £7,065 (progression by two increments to £7,572 subject to standard of work)

A very special person is being sought for the position of creative design tutor in the Fashion Area of the Gwent College of Higher Education, Faculty of Art and Design (formerly Newport College of Art and Design). The person appointed to this senior post will have the experience and flair to undertake the responsibility for high-level design tuition. He or she will also have a considerable influence on future course development in a changing situation.

The Faculty offers high-level courses recognized by the CMAA, the University of Wales and the Society of Industrial Artists and Designers.

Further information and application forms from:
The Principal/Administrative Officer,
GWENT COLLEGE OF HIGHER EDUCATION
College Crescent, Caerleon, Newport, Gwent NP23 1XJ
Telephone: (0633) 421292

Returnable within 14 days of the appearance of this advertisement, together with a curriculum vitae.

LIVERPOOL INSTITUTE
OF HIGHER EDUCATION(A Federation of Christ's, St. Anthony's and
Notre Dame Colleges)APPOINTMENT OF
RECTOR

APPLICATIONS are invited from suitably qualified and experienced persons who are practising Roman Catholics or Anglicans for the post of Rector of the new Liverpool Institute of Higher Education. The Institute, comprising the three Voluntary Colleges of Christ's, St. Anthony's and Notre Dame Colleges, offers a unique and exciting educational and economic venture. Course programmes, B.E.D., B.A. and Diplomas, are validated by the University of Liverpool to which the colleges are affiliated.

It is expected that the salary will be £12,500 and that the successful applicant may be able to assume the office as from April 1st, 1979, or a mutually agreed date.

Further details may be obtained from the Clerk to the Governing Council, c/o Christ's College, Woolton Road, Liverpool L16 8ND.

Closing date for applications: Tuesday, 7th November, 1978.

TRINITY
AND ALL SAINTS'
COLLEGES

Trinity and All Saints' Colleges, affiliated with the University of Leeds, form an independent institution providing studies leading to B.A. (College), B.Sc. (College) and B.Ed. (College) degrees of the University of Leeds. The candidate appointed to the post of Lecturer in the above subjects will be expected to contribute to the development of the college and to contribute to course development and research.

Applications are invited for the post of
LECTURER II/SENIOR LECTURER
IN ECONOMICS

with interests in one or more of the areas: general macro-economics, monetary economics, public finance and fiscal policy, economic planning and growth.

Salary scale in the range: Lecturer II: £4,101-£6,598; Senior Lecturer, £6,081-£7,572.

Further particulars and application forms, which should be returned by 14th November, 1978, are obtainable from:

The Registrar (Applications),
Trinity and All Saints' Colleges,
Browncliffe Lane,
Horsforth,
Leeds LS18 5HD

The Rose Bruford College
of Speech and Drama
Lecturer II in
Mime/Movement

Applications are invited for the above post to teach Mime/Movement and some Voice within the College from January 1st 1979.

Suitable applicants should have wide experience of working in the Theatre as well as teaching, particularly at student level.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, The Rose Bruford College of Speech and Drama, Lambourne Park, Sidcup, Kent, by 10th November 1978.

Applications are invited for the above post to teach Mime/Movement and some Voice within the College from January 1st 1979.

Suitable applicants should have wide experience of working in the Theatre as well as teaching, particularly at student level.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, The Rose Bruford College of Speech and Drama, Lambourne Park, Sidcup, Kent, by 10th November 1978.

Applications are invited for the above post to teach Mime/Movement and some Voice within the College from January 1st 1979.

Suitable applicants should have wide experience of working in the Theatre as well as teaching, particularly at student level.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, The Rose Bruford College of Speech and Drama, Lambourne Park, Sidcup, Kent, by 10th November 1978.

Applications are invited for the above post to teach Mime/Movement and some Voice within the College from January 1st 1979.

Suitable applicants should have wide experience of working in the Theatre as well as teaching, particularly at student level.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, The Rose Bruford College of Speech and Drama, Lambourne Park, Sidcup, Kent, by 10th November 1978.

Applications are invited for the above post to teach Mime/Movement and some Voice within the College from January 1st 1979.

Suitable applicants should have wide experience of working in the Theatre as well as teaching, particularly at student level.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, The Rose Bruford College of Speech and Drama, Lambourne Park, Sidcup, Kent, by 10th November 1978.

Applications are invited for the above post to teach Mime/Movement and some Voice within the College from January 1st 1979.

Suitable applicants should have wide experience of working in the Theatre as well as teaching, particularly at student level.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, The Rose Bruford College of Speech and Drama, Lambourne Park, Sidcup, Kent, by 10th November 1978.

Applications are invited for the above post to teach Mime/Movement and some Voice within the College from January 1st 1979.

Suitable applicants should have wide experience of working in the Theatre as well as teaching, particularly at student level.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, The Rose Bruford College of Speech and Drama, Lambourne Park, Sidcup, Kent, by 10th November 1978.

Applications are invited for the above post to teach Mime/Movement and some Voice within the College from January 1st 1979.

Suitable applicants should have wide experience of working in the Theatre as well as teaching, particularly at student level.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, The Rose Bruford College of Speech and Drama, Lambourne Park, Sidcup, Kent, by 10th November 1978.

Applications are invited for the above post to teach Mime/Movement and some Voice within the College from January 1st 1979.

Suitable applicants should have wide experience of working in the Theatre as well as teaching, particularly at student level.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, The Rose Bruford College of Speech and Drama, Lambourne Park, Sidcup, Kent, by 10th November 1978.

Applications are invited for the above post to teach Mime/Movement and some Voice within the College from January 1st 1979.

Suitable applicants should have wide experience of working in the Theatre as well as teaching, particularly at student level.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, The Rose Bruford College of Speech and Drama, Lambourne Park, Sidcup, Kent, by 10th November 1978.

Applications are invited for the above post to teach Mime/Movement and some Voice within the College from January 1st 1979.

Suitable applicants should have wide experience of working in the Theatre as well as teaching, particularly at student level.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, The Rose Bruford College of Speech and Drama, Lambourne Park, Sidcup, Kent, by 10th November 1978.

Applications are invited for the above post to teach Mime/Movement and some Voice within the College from January 1st 1979.

Suitable applicants should have wide experience of working in the Theatre as well as teaching, particularly at student level.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, The Rose Bruford College of Speech and Drama, Lambourne Park, Sidcup, Kent, by 10th November 1978.

Applications are invited for the above post to teach Mime/Movement and some Voice within the College from January 1st 1979.

Suitable applicants should have wide experience of working in the Theatre as well as teaching, particularly at student level.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, The Rose Bruford College of Speech and Drama, Lambourne Park, Sidcup, Kent, by 10th November 1978.

Applications are invited for the above post to teach Mime/Movement and some Voice within the College from January 1st 1979.

Suitable applicants should have wide experience of working in the Theatre as well as teaching, particularly at student level.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, The Rose Bruford College of Speech and Drama, Lambourne Park, Sidcup, Kent, by 10th November 1978.

HAMPSHIRE
Southampton College of
Higher Education
Principal Lecturer
in
Marine Engineering

Applications are invited for the above post to teach Marine Engineering and some related subjects within the College from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Marine Engineering or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, Southampton College of Higher Education, East Park Terrace, Southampton SO9 4WY (please include stamped addressed A4 envelope) to whom they should be returned within 14 days of the appearance of this advertisement.

Applications are invited for the above post to teach Marine Engineering and some related subjects within the College from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Marine Engineering or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, Southampton College of Higher Education, East Park Terrace, Southampton SO9 4WY (please include stamped addressed A4 envelope) to whom they should be returned within 14 days of the appearance of this advertisement.

Applications are invited for the above post to teach Marine Engineering and some related subjects within the College from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Marine Engineering or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, Southampton College of Higher Education, East Park Terrace, Southampton SO9 4WY (please include stamped addressed A4 envelope) to whom they should be returned within 14 days of the appearance of this advertisement.

Applications are invited for the above post to teach Marine Engineering and some related subjects within the College from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Marine Engineering or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, Southampton College of Higher Education, East Park Terrace, Southampton SO9 4WY (please include stamped addressed A4 envelope) to whom they should be returned within 14 days of the appearance of this advertisement.

Applications are invited for the above post to teach Marine Engineering and some related subjects within the College from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Marine Engineering or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, Southampton College of Higher Education, East Park Terrace, Southampton SO9 4WY (please include stamped addressed A4 envelope) to whom they should be returned within 14 days of the appearance of this advertisement.

Applications are invited for the above post to teach Marine Engineering and some related subjects within the College from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Marine Engineering or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, Southampton College of Higher Education, East Park Terrace, Southampton SO9 4WY (please include stamped addressed A4 envelope) to whom they should be returned within 14 days of the appearance of this advertisement.

Applications are invited for the above post to teach Marine Engineering and some related subjects within the College from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Marine Engineering or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, Southampton College of Higher Education, East Park Terrace, Southampton SO9 4WY (please include stamped addressed A4 envelope) to whom they should be returned within 14 days of the appearance of this advertisement.

Applications are invited for the above post to teach Marine Engineering and some related subjects within the College from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Marine Engineering or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, Southampton College of Higher Education, East Park Terrace, Southampton SO9 4WY (please include stamped addressed A4 envelope) to whom they should be returned within 14 days of the appearance of this advertisement.

Applications are invited for the above post to teach Marine Engineering and some related subjects within the College from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Marine Engineering or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, Southampton College of Higher Education, East Park Terrace, Southampton SO9 4WY (please include stamped addressed A4 envelope) to whom they should be returned within 14 days of the appearance of this advertisement.

Applications are invited for the above post to teach Marine Engineering and some related subjects within the College from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Marine Engineering or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, Southampton College of Higher Education, East Park Terrace, Southampton SO9 4WY (please include stamped addressed A4 envelope) to whom they should be returned within 14 days of the appearance of this advertisement.

Applications are invited for the above post to teach Marine Engineering and some related subjects within the College from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Marine Engineering or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, Southampton College of Higher Education, East Park Terrace, Southampton SO9 4WY (please include stamped addressed A4 envelope) to whom they should be returned within 14 days of the appearance of this advertisement.

Applications are invited for the above post to teach Marine Engineering and some related subjects within the College from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Marine Engineering or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, Southampton College of Higher Education, East Park Terrace, Southampton SO9 4WY (please include stamped addressed A4 envelope) to whom they should be returned within 14 days of the appearance of this advertisement.

Applications are invited for the above post to teach Marine Engineering and some related subjects within the College from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Marine Engineering or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, Southampton College of Higher Education, East Park Terrace, Southampton SO9 4WY (please include stamped addressed A4 envelope) to whom they should be returned within 14 days of the appearance of this advertisement.

Applications are invited for the above post to teach Marine Engineering and some related subjects within the College from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Marine Engineering or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, Southampton College of Higher Education, East Park Terrace, Southampton SO9 4WY (please include stamped addressed A4 envelope) to whom they should be returned within 14 days of the appearance of this advertisement.

Administration continued

LONDON
UNIVERSITY COLLEGE
ADMINISTRATIVE
ASSISTANT

Applications are invited for the above post to assist in the administration of the University College, London, from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Administration or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, University College, London, Gower Street, London WC1E 6BT.

Applications are invited for the above post to assist in the administration of the University College, London, from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Administration or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, University College, London, Gower Street, London WC1E 6BT.

Applications are invited for the above post to assist in the administration of the University College, London, from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Administration or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, University College, London, Gower Street, London WC1E 6BT.

Applications are invited for the above post to assist in the administration of the University College, London, from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Administration or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, University College, London, Gower Street, London WC1E 6BT.

Applications are invited for the above post to assist in the administration of the University College, London, from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Administration or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, University College, London, Gower Street, London WC1E 6BT.

Applications are invited for the above post to assist in the administration of the University College, London, from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Administration or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, University College, London, Gower Street, London WC1E 6BT.

Applications are invited for the above post to assist in the administration of the University College, London, from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Administration or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, University College, London, Gower Street, London WC1E 6BT.

Applications are invited for the above post to assist in the administration of the University College, London, from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Administration or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, University College, London, Gower Street, London WC1E 6BT.

Applications are invited for the above post to assist in the administration of the University College, London, from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Administration or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, University College, London, Gower Street, London WC1E 6BT.

Applications are invited for the above post to assist in the administration of the University College, London, from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Administration or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, University College, London, Gower Street, London WC1E 6BT.

Applications are invited for the above post to assist in the administration of the University College, London, from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Administration or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, University College, London, Gower Street, London WC1E 6BT.

Applications are invited for the above post to assist in the administration of the University College, London, from January 1st 1979.

Suitable applicants should have a minimum of 10 years' experience in a similar post, and a degree in Administration or a related subject.

Letters of application together with a detailed Curriculum Vitae and the names of two referees to reach the Registrar, University College, London, Gower Street, London WC1E 6BT.

Applications are invited for the above post to assist in the administration of the University College, London, from January 1st 1979.

Overseas

Details and application forms from the Education Officer (EO/Estab 18) Room 367, The County Hall London SE1 7PB. Please enclose a stamped addressed foolscap envelope.

Forms to be returned by 15 November 1978.

BEC (Examiners),
78 Portland Place,
London, W1N 4AA
for return by 1 December, 1978.

Dr Kallam Siddiqui
The Muslim Institute
6 Endsleigh Street,
London WC1H 0DS

A survey conducted by Nielsen Market Research Ltd. shows that an average issue of **THE TIMES** is read by 30,000 academics at universities, polytechnics and colleges in England and Wales.

In addition, 57% of the readers always or frequently look at job advertisements which might suit them irrespective of how settled they are in their current position. If you have a vacancy to fill, make sure you choose **THE TIMES**. It could save you a lot of time, effort and

The Staffing Officer,
Gippsland Institute
of Advanced Education
Switchback Road, Churchill, 3842, Australia
The Institute reserves the right to appoint by
invitation or to make no appointment.

**L. B. Wallis,
General Secretary,
F.A.U.S.A.**
499 St. Kilda Road, Melbourne, Vic. 3004, Aust.
(Phone (03) 26-1264).

Ambool Institute of Advanced Education

Applications are invited from persons qualified in
 flows Studies. Information supplied should include
 name, address, telephone number, date of birth, pre-
 position and salary, level of position sought, academic
 qualifications, professional experience and the names
 and addresses of three referees. Applications address

DUTIES: The appointee will teach mainly in the field of Buddhism and Hinduism. Expertise in the History of Religions and the Phenomenology of Religions will be an advantage.

SALARY SCALES: (as June 7, 1970, rates):

Lecturer I	(5 steps)	\$17,766 to \$19,844
Lecturer II	(5 steps)	\$15,182 to \$17,358
Senior Tutor	(8 steps)	\$13,086 to \$14,990

Lecturer I, II positions, are normally offered as tenure positions. Progression from Lecturer II to Lecturer I is not automatic. There is no progression from Senior Tutor to Lecturer II.

Applications are invited for
the above post, viz and from

Applications are invited for the above post, vacant 1st January 1979. Applicants must be qualified in the above subject, and have a minimum of 12 months' experience in the above post, or equivalent. Applications should be sent to the Secretary, Department of Education, 100, Victoria Road, London W14 9PL. Applications should be received by 15th November 1978.

The incumbent will be required to participate in a rotation of under-

Applicants should submit a

any or all of the following fields: American history; European history; South American history; African history; and the history of the United States in the world. Applicants should send their resumes and references to the following address:

Memoranda concerning

Applications concerning the position and general conditions of service should be obtained from the Registrar, Room 10, University of Cape Town, Private Bag 8, Rondebosch, C.P. 7700, by whom applications may be received.

THE BRITISH COUNCIL

Foundation Principal, Dr. J. H. Flak, is to retire early 1980 and the Council of the college wishes to appoint a successor so that, if possible, he/she can take up duty in January/February 1980.

is a multi-discipline, multi-campus college serving
of the growing western area of Sydney and the
Blue Mountains. The college has had a steady
in recent years and this is expected to continue.
the college expects to have approximately 1,400
in three

Principal is the chief academic and administrative

of the college and is responsible to the governing body of the college for promoting the interests and the development of the college. In particular, he is responsible for the academic, administrative, financial and business of the college and exercises a general supervision over the same.

QUALIFICATIONS: Applicants should possess high academic attainments and have proven administrative experience at a senior level in a government or private organization.

SA\$5,739 p.a. plus SA\$500 expense allowance.
 of service include sick leave, recreation leave,
 leave and superannuation. The college will pro-
 vide for travel, removal and, if necessary, initial
 relocation expenses, and a staff home, furniture, books

marked "Confidential", and including the names and addresses of three referees, should reach the Secretary of Council, Nepean College of Advanced Education, Box 10, Kingswood, New South Wales 2750. Ans. by January 10.

For further information please write to the Chairman at the above address.

NEPEAN COLLEGE
OF ADVANCED EDUCATION

REMINDER

PRECEDING
THE DATE OF
PUBLICATION

Staff Officer, University of New England, Armidale, New South Wales 2351, Australia, without delay.

Applications close November 17, 1978.

local newsagent.

LONDON, WCIX 8EZ

ADDRESS

NEWSAGENT

ADDRESS _____

100

A selection of the world's finest teaching aids — on microfilm

NEWSPAPER ARCHIVE DEVELOPMENTS LTD., publish a selection of the world's most important newspapers and magazines, on microfilm. In many cases we can supply the complete backfile of our publications, enhancing their value as research sources and teaching aids.

NEWSPAPERS AND MAGAZINES

THE TIMES, THE TIMES LITERARY SUPPLEMENT, THE TIMES EDUCATIONAL SUPPLEMENT, THE TIMES HIGHER EDUCATION SUPPLEMENT, THE SUNDAY TIMES, FINANCIAL TIMES, DAILY and SUNDAY TELEGRAPH, THE SCOTSMAN, BELFAST TELEGRAPH, EVENING STANDARD, LLOYDS LIST, LE MONDE, LE MONDE DE L'EDUCATION, LE MONDE DIPLOMATIQUE, JOURNAL DE GENEVE, THE AGE (MELBOURNE), STRAITS TIMES (SINGAPORE), BANGKOK POST, AL-AKHBAR (CAIRO), MIDDLE EAST ECONOMIC DIGEST, SAUDI ECONOMIC SURVEY.

We also publish THE TIMES INDEX and OBITUARIES FROM THE TIMES, in hard cover.

MICROFILMED COLLECTIONS

In addition to the titles listed above we are also selling agents for the microfilmed collections of RESEARCH PUBLICATIONS INC. U.S.A. These important titles include THE BURNEY COLLECTION OF EARLY ENGLISH NEWSPAPERS, GOLDSMITHS-KRESS LIBRARY OF ECONOMIC LITERATURE, THE HISTORY OF PHOTOGRAPHY, AMERICAN FICTION (1774-1910), GERMAN BAROQUE LITERATURE, RUSSIAN REVOLUTIONARY LITERATURE and many more collections of European history and literature.

Full details and prices of all our products are available from:—



David Robson

Newspaper Archive Developments Limited

Holybrook House, Castle Street, Reading RG1 7SN, England
(0734) 583247

LETTERS TO THE EDITOR

Environmental science degree courses

We were disturbed to read *THE TIMES* (September 15) the reasons for the Council of Environmental Science and Technology has put forward for advising prospective students against taking courses in environmental science. Our experience at Plymouth over the past five years has been that our environmental science graduates are in no way disadvantaged when competing for jobs. Indeed, many employers seem to prefer them to specialists, precisely because of the breadth of their undergraduate education.

Similarly, our graduates seldom have trouble in obtaining places on postgraduate courses leading to professional qualifications. Much of the material on many of these courses has already been covered by our graduates in their final year options, in a scientifically rigorous manner, and in a way which is far more sophisticated than in environmental terms.

Dr Arnold Robinson's remarks that the chemical industry prefers specialist chemists, and that environmental science graduates often end up in jobs which are not "environmental" betrays a woeful ignorance of what environmental science courses are designed to achieve. It is precisely because specialists have attempted to solve environmental problems in the past, and largely failed, that we need more, not less, cross-trained environmental scientists.

As pointed out by Sir Iwan Hobbie, the range of problems that environmental scientists need to understand is very great. How then can people trained in narrow specialisms hope to understand them?

Environmental problems need to be tackled by scientists who appreciate the complexity and subtlety of the environment. These experts on the environment can then join professions such as engineering, and help them reconcile their basic concepts and aspirations with the demands of the environment. What is needed is for each environmental science graduate to receive a rigorous interdisciplinary undergraduate training, upon which to base his or her subsequent professional career.

Whether profession they then choose they will pursue it in a dispassionate manner, which takes full account of the environment and its needs. As the impact of technology on our society will need more scientists and managers in both the public and private sectors who are able to operate in this way. The question of whether their eventual job is "environmental" or not is a red herring.

At Plymouth we have rejected the idea that environmental science is a subject which consists of a "patchwork" of other disciplines. Instead, we have defined the basic concepts and techniques of environmental science, and put them to work in a coherent foundation to our courses which introduce students to the discipline of environmental science. We have in this way achieved the coherence and identity which is said such courses often lack, while sacrificing none of their depth and diversification.

In their final year our students specialize in three areas of environmental science in order to achieve the expertise needed to deal with "real-world" problems. However, we ensure that in the course of

such specialization they do not lose the ability to relate their specialist knowledge to the wider aspects of their subject, so that they remain environmental scientists in the true sense of the term.

Yours faithfully,
P. R. O'SULLIVAN,
P. L. WIGSTON,
School of Environmental Sciences,
Plymouth Polytechnic.

Sir,—Juxtapose the letter of P. A. Robinson, on careers for environmental scientists, and your article on "Demand for graduates" (*THE TIMES*, October 13th) and we have a paradox. Mr Robinson is concerned that environmental scientists are either not getting "good" jobs or, indeed, not jobs with "no environmental content"; whereas the article is concerned that there are "substantial vacancies" in management, personnel, computing, etc., to attract graduates from other disciplines.

The thesis of Mr Robinson is (a) that environmental science graduates are disadvantaged in the job market, and (b) that it is some kind of failure if they obtain a post not immediately related to their degree studies. We can only say that (a) is not true for graduates from our BSc(Hons) Environmental Science Degree at Plymouth Polytechnic. It is important that the nature of environmental science study is fully explained to potential employers, and this is achieved by visits, active careers service and (probably most effectively) by detailed information in any letter of reference.

Having secured an interview our graduates find that their breadth and depth of study, with emphasis on complex problem evaluation and communication, enables them to successfully compete with graduates from standard disciplines. This has been true even where environmental scientists have competed for specialist posts with graduates from vocational courses.

Statistics, discussed with colleagues from other polytechnics, universities and colleges at the recent first national seminar on higher environmental education organized by the Institution of Environmental Sciences suggest that our Plymouth experience is by no means unique. Mr Robinson's reading of the Sheffield figures reveals the classic mis-equation of environmental scientists with engineers, chemists, etc. For many years graduates from courses such as Geology, History, English, PPE, have cast a wide job applications net, usually not directly related to their degree. It is most important to inform all potential environmental science undergraduates that they will have to do the same.

Indeed we positively encourage our graduates to go into a wide range of posts in the public and private sectors.

Yours faithfully,
Dr D. L. Wigston,
Dr P. O'Sullivan,
School of Environmental Sciences,
Plymouth Polytechnic.

Sir,—In his article Standard of Environmental Degrees, *THE TIMES* (September 15) your science correspondent Robin McKie appears to associate Professor Michael

Delaney with Dr Arnold Robinson in a blanket criticism of all environmental science degree courses. Having spoken to Professor Delaney I know that he does not agree with the view expressed by Dr Arnold Robinson as the report appears to suggest. One wonders further what competence Dr Robinson and the Council of Environmental Science and Technology have to judge all environmental science departments. To my knowledge no members of the council has ever visited or communicated with the department at Lancaster.

Lancaster, for instance, in common with a number of other universities (such as East Anglia, Southampton) offers carefully integrated and intellectually oriented courses of an intellectual standard equal to that expected in single subject scientific courses. These courses provide a scientific training which is particularly relevant to the solution of problems involving many variables.

This approach is different from that of most single subject scientific courses where practical training is contained within the laboratory and the number of variables carefully limited. The department of environmental sciences at Lancaster concentrates its interests on the science of the natural environment. It offers three separate degree schemes of study leading respectively to Bachelor of Science degrees in environmental science, ecology or geophysical sciences.

The ecology course is taught jointly with the department of biological sciences and the geophysical sciences course with the department of physics. Each of these courses has a broad base leading to opportunities for specialization. The department of environmental sciences alone has 19 full-time teaching staff, a vigorous research programme and attracts visiting scholars.

The number of students graduating from all three courses is of the order of 80. We have found these students at a disadvantage compared to students from single subject science departments in obtaining appropriate employment. It is neither our intention nor is it necessary that all graduates in environmental sciences should be restricted to employment directly associated with the natural environment.

Indeed, far from being a "hotch potch" inferior to single subject degrees, these courses provide an alternative training in applied science producing valuable candidates of different kind from those coming from "conventional" science departments.

We have frequently been complimented by satisfied employers on the standard and adaptability of our graduates and the speed with which they assimilate new skills. Lancaster graduates have entered a very wide range of employment and we have numerous instances of our graduates who have, during the past ten years made excellent progress into senior appointments.

Yours faithfully,
A. N. HUNTER,
Department of Environmental Sciences,
Lancaster University.

Advantages of the Open University

Sir,—I was intrigued by Maggie Richards's account (*THE TIMES*, October 13) entitled Dangerous Myth of The OU of an article by John Alcey Mythology in the Making. While not wishing to dispute Mr Mace's conclusions without first studying his article carefully, I would like to comment on the observation: "below 15 per cent of all OU ordinary graduates were educationally disadvantaged. To demonstrate the relative openness of the OU it would be necessary to compare these percentages with the unqualified who enter conventional universities and other degree-awarding institutions and go on to secure degrees." This evidence is not provided.

I am not surprised that "this evidence is not provided" as it is extremely difficult to come by and as far as I and my colleagues are aware no one has produced evidence on a national scale. Many universities do not keep separate records of students who enter without the necessary formal qualifications and those that do have formal procedures of entry for unqualified students apply them at different ages ranging from 21 to 26.

Thus it is not possible to ascertain how many such students there are in British universities. A reasonable guess would be some 15 students

over the age of 25 in each university—a total of 750. A similar picture is found with the polytechnics, but it is made more complex due to the variety of courses.

As to the final examination performance of unqualified students, little evidence is as yet available for the conventional universities. Studies of mature students at Warwick and Lancaster suggest that mature students do rather better than do students entering at 18. Unfortunately, these studies do not provide any separate information on unqualified students. Durham University reports a very high wastage rate among its unqualified mature student intake of 1972.

We at the division of continuing education are currently investigating unqualified mature students who entered Sheffield University between 1975 and 1978 as part of a two-year DES-funded research project on mature students. It would be useful if similar studies could be carried out elsewhere. The evidence would then be available to compare the "openness" of the OU with conventional universities as Mr Mace is attempting to do.

Yours faithfully,
GORDON RODERICK,
Director,
Division of Continuing Education,
Sheffield University.

Salary secrecy

Sir,—A colleague has recently brought your article of September 22, 1978 on the AUT test case on salary secrecy to my attention. I feel that your readers may be interested in my experience of AUT policy on disclosure of salary information and the AUT hypocrisy which it exposes.

In 1976/77, I wrote to the AUT requesting information on nationally negotiated salary levels for university teachers. My letter was one of a number which I sent to "white collar" unions in connection with an SSRC funded research project. I was, at that time, research assistant to Professor Donald Maclean at the Department of Political Economy, University of Aberdeen.

The reply from the AUT informed me that the information I required would only be made available if I was a member of the AUT, despite the fact that, to quote Mr Laurie Sapper (in your article), "This is not secret information. There is no reason why it should be withheld." Both Professor MacKay and I were members of the AUT at that time, and we eventually obtained the required information. However, the most significant fact, in the light of the AUT's present attitude, is their initial refusal to disclose this information and their continued refusal to alter their policy on disclosure of salaries despite the fact that the information was not secret and perhaps more importantly, despite the fact that they were actively limiting free academic inquiry. After almost a year of unsuccessful attempts to have the policy changed, I resigned from the AUT as a principle.

The similarity between the official policy of the AUT and that of the universities involved in the current dispute is striking, and whereas I support the notion of full disclosure of salary data (in this context and generally) I feel that the AUT is attempting to operate an unpleasant double standard.

Yours sincerely,
J. L. FALLICK,
Department of Economics,
University of Manchester.

Voluntary colleges

Sir,—Dr Cannon's letter (*THE TIMES*, September 29) should not be allowed to pass entirely without comment, if only for the sake of maintaining a proper perspective on the issue. Dr Cannon gives the impression, whether deliberately or otherwise, that he looks on voluntary colleges as intruders on the scene who are, in his view, quite likely to fail their probationary period and therefore should be dismissed as soon as possible so that their jobs can pass to some of their longer-established colleagues.

The inaccuracy of this representation of the voluntary colleges' position will fortunately be obvious to those many people who know the long and valued contribution which the colleges have been making.

But the really crucial point to unpack from Dr Cannon's letter is to discover in whose name he believes himself to be asking his question about justification for their continued existence? and, even more significantly, in whom the question is being directed. If it is directed to the 25 or so voluntary providing bodies who carry the responsibility for these colleges, then they will not be impressed by his pseudo-argument that Dr Cannon puts forward. (They will note that on his own admission his knowledge of the voluntary colleges as a whole is "limited".)

If his question is addressed to the DES and/or the RACs then they too are not likely, on the strength of this sort of challenge, to reverse their positive evaluation of the voluntary colleges' contribution to the future pattern of HE, an evaluation which is clearly reflected in the Gakes report (particularly in its recommendations on new RAC structures), and one which, even when in the RAC's own deepening relationships with the voluntary colleges and their providing bodies.

Yours faithfully,
COLIN ALVES,
Secretary for the Church Colleges,
Board of Education,
Church House, Westminster.

Fircroft reopening

Sir,—It is encouraging news that the TUC may be prepared to attend talks based on the Charity Commission proposals for the reopening of Fircroft College. The Old Fircrofters Guild, while not entirely confident of the practicalities of the outline proposals, nevertheless welcome them in principle as an improvement on the previous scheme which gave the TUC a simple unencumbered majority on the new Fircroft Council.

What is essential now is that future talks are not confined to the Fircroft Trust, TUC and Charity Commissioners. It was through the secret conclaves of the first two parties that the college was brought to the brink of permanent closure. We hope the Trust

and the TUC will realize that the present situation does not call for private negotiations but for open consultations. Fircroft, long largely supported by the DES, is in the public domain and its future should be decided only after discussions with representatives of other expert and interested parties such as the various adult education bodies and ex-students.

The "shadow" Fircroft Council along with the Charity Commissioners is the obvious body to which swift recourse should be made if the college is going to reopen next year.

Yours faithfully,
BRIAN N. NICOL,
Press Officer,
The Old Fircrofters' Guild.

Teesside Polytechnic

The recent and much publicized CNA report on this polytechnic has raised many important questions but, in a debate that has been largely a jurisdictional nature, perhaps the more important question of all—what is the role of (or any) polytechnic?—has not been asked. It is, therefore, more appropriate that Eric Robinson, whose ideas inspired many people who entered the polytechnics in their inception, in his address to the Socialist Educational Association in Blackpool, should be calling for a review of attitudes towards post-school education at a time when the provision of higher education in particular is being questioned in the light, not just of demographic and economic changes that will bring new pressures and demands on all sectors of tertiary education in the coming decades.

Understandably, many polytechnics have tended towards a university type existence. While this can be seen as an advance, in the sense of an increase in the number of higher education places, this tendency has, in a wider and more important sense, led to the perpetuation of a privileged/underprivileged division between higher and further education which has resulted in not simply resentment between the two groups but the neglect of a large and deserving section of the population, as well as a less than efficient use of resources.

For some polytechnics the presence of an established university makes it difficult to break down the barriers within tertiary education. However, for others, such as Teesside, situated in an area where the presence of capital intensive industry with limited job creating potential is more significant, and the absence of a university, the opportunities to develop com-

prehensive adult education, in conjunction with the local colleges of education, are considerable.

The problems of higher education can usefully be seen as opportunities for adult education. The need for a comprehensive provision of post-school education is probably greater now than ever before but, more importantly, the chance to meet this need is also probably greater. The polytechnics, especially those situated in areas similar to County Cleveland, have a golden opportunity that must be taken. An initiative has been provided by ideas such as those of Eric Robinson's. Now is the time for these involved throughout education to follow up and build on this lead.

Yours faithfully,
DAVID TAYLOR,
FRANK GRIFFITHS,
RICHARD LEWIS,
Department of Humanities,
Teesside Polytechnic.

Don's diary

Friday

There seems to be something of a one-person-ism about Don's Diary. "Had breakfast with John Herger, gave a seminar at the North Pole, back for senate in the afternoon". Mentally ring up the cash register during the coffee break at the centre in Dubrovnik where I've been invited to contribute to a women's studies course. Not only will I get a week of working on something I enjoy in a nice place, but maybe this will qualify me for another diary in *THEES*.

Saturday

The course is an interesting one, although there is something of a tension between the Marxist feminists, the Marxist non-feminists and the feminist non-Marxists. A British colleague and I are riveted by the popularity of Parsons and role theory among some of the participants and slightly taken aback by one person's suggestion that if work by women is to be taken seriously, we must adopt the sophisticated quantitative techniques that men admire. See what he is getting at the next day when he unfolds a large-scale piece of research proving that at a constant rate of social change, men will take an equal part in the cooking in nine generations time. Maybe if we can hold on for the odd five hundred years, they'll be cleaning the floors too.

Sunday

A day in Belgrade on the return journey and a visit to the pictures

Academics pitchforked into war



Bryan Davies

The scene was typically England in late summer. A group of academics were entertaining their visitors by a glass of beer at tables set outside their senior common room. A fairly gentle game of tennis was in progress on a nearby court. In a relaxed atmosphere the conversation meandered gently over a range of educational issues with now and again a jarring note. There was a pronounced stiffening in the attitudes of all involved as phrases began to emerge which would mean little in an English context. "Brightlights" duty was a bore and rarely dangerous. "Cordon and search" operations showed the increasing concern of authorities in the city. Weekend duties at the border were increasingly attended by danger. This was Salisbury, Rhodesia and those were academics at war.

The visit to the University of Rhodesia was part of an eight day mission undertaken by Austin Mil-

with a group of friends to see a film on Yugoslav youth. Since my knowledge of the language is limited to "Yes, no, please, thank you, hello, goodbye and push off" (very lady's travelling vocabulary) a friend



AA patrolman: bringer of bad news.

has to keep up a simultaneous translation throughout. It all seems to be material that Mrs Whitehouse would not blush to see but am assured the youth culture is alive and kicking when we go to a café afterwards and a boy joining the group looks up from his specially imported New Musical Express for

catching the sleeper up to Leeds. The nice attendant brings me a nightcap and I settle down with Durkheim's *Suicide*.

Tuesday

After a night of being woken by

the campus some student brawls have occurred in which the losses set badly beaten but nothing more than the academic. Life for the academic, therefore, sustains the appearance of normality.

Yet the sources of tension are many. Military service for able-bodied men varies between 35 to a maximum of 180 days a year. A week spent in the lecture room can precede a weekend riding convoy patrol to Heidelberg on the South African border. At best this is a riding shotgun in some modern replay of Wells' *Fargo*. At best one's vehicle has anti-mine protection and bullet-proof shields which increase the margin of safety. Nevertheless, in graphic terms "you're there to be shot at" and some are.

There were some even at the highest levels who deeply deplored Britain's failure to join in the battle to maintain white supremacy

deeply deplored Britain's failure to join in the battle to maintain white supremacy

Indeed a week after we returned to the University of Rhodesia, Beitbridge itself was blown up by the guerrillas.

Generally less hazardous but infinitely more tedious duties are involved in "Operation Brightside". Reservists are deployed in pairs to mount guard duty at isolated farms. A communications network connects the farms with the nearest police station or security base but the defences look minimal against a serious sustained attack. We visited next day a farm which had been attacked in broad daylight—admittedly when the farmer himself was in town and only his labourers were left to guard the property, and the damage was considerable. The farmer had lost his light aircraft and his tractor, his buildings and his farm stores. He had also lost the majority of his labourers who had run off to join "the boys in the bush". "Operation Brightside" appeared a weak counter to that kind of onslaught.

Salisbury remains safe, particularly its central and northern precincts. Relations between black and white appear superficially relaxed. On the campus a revolution has occurred in a decade. The substantial majority of students are now black. Blacks also form an increasing proportion but still a limited number of faculty. Tensions in the city have thus far produced little more than small explosive devices placed in mail boxes. On

long enough to tell me: "I hate dirty stinking rotten Western capitalism, but I like my joint."

Monday

Time to go home and off the plane and into the international planned curriculum library (this is a true story) to do some work on the talk I'm giving to family planners on Thursday. By the time I reach the library, my arms have almost been ripped from their sockets by the duty free in my bags but recuperate during the course of the afternoon and go to a film before

every jolt between King's Cross and Leeds, a day of meetings is made bearable only by reading my mail in reverse pleasure order (that is, hand-written ones last). On the way home, my car breaks down, due no doubt, to the 10 days lack of use while I was away. "Don't worry me, it's nothing trivial" says the jovial AA man when he arrives, adding: "It's a shame there's no National Health Service for cars, cos this one's knackered." Comfort myself in the evening by going to visit one of the patients in my research on women and health.



AA patrolman: bringer of bad news.

My day for a talk on male hegemony, family planning to a group of family planning doctors and nurses. I'm to join them for lunch and speak afterwards. After the morning's work, snatch up my books and briefcase, glance at my diary and see that I'm heading for the Valley Hotel in Harrogate. Arrive there, and find to my horror that there is no such place. While a hotel receptionist phones round all the local hotels I (now teetering on the borderline of sanity and fortified only by a gin and tonic) go outside and approach likely looking answers to ask if they happen to be family planning doctors.

I stop this line of inquiry when one of them looks at me frostily (as only a Harrogate lady can) and asks: "Why my dear, do you need one of these?" A psychiatrist proposing the vote of thanks after the meeting has eventually been traced to the palatial headquarters of the area health authority and I have given my talk: offers several possible explanations for the Valley Hotel error, none of which seem quite right. Any further suggestions to me on a postcard please. A week in Bradford for the lucky winner.

One of the worst duties to which one lecturer had been assigned had been a guard duty at "protected villages". The PVs represent an attempt to isolate guerrillas from the tactics employed in Malaya and more recently in Vietnam to isolate guerrillas from prospective guerrilla infiltration. Surrounded by barbed wire and with intensive lighting, supervised by a "keener" with the security guard is mounted, the villages suffer from all the disadvantages of the besieged fortress. Driven at night within the fence the villagers are obliged to travel many miles to their fields at daybreak. Tending to the cattle becomes almost impossible and the herds disperse or provide food for "the boys in the bush".

Under intense pressure from its black members and their supporters, the administration is yielding and dismantling the PVs. The hostility they generated made guard duty the least of their humiliations and dangerous obligation.

University staff were pessimistic about the security position and the politics of the internal settlement. The crucial test of the participation of Bishop Muzorewa and the Reverend Stikelo in the internal settlement was clearly the restoration of peace and security and the orderly progress to elections. Despite the enormous limitations on the flow of information in a heavily censored society, our hosts considered the war to be going badly. Some might be given to optimism as their troops as part-time soldiers with the Rhodesian regular army were generally successful.

The army packs a punch and wins all major engagements. But guerrilla warfare, of course, relies upon avoiding such pitched battles and the guerrillas' friends reflected the increasing and becoming more widespread. Only three days earlier the *Rhodesia Herald* had published details of a brutal martial law in certain areas, one such reaching to within 25 miles of Salisbury.

The future looked bleak. Although there was growing number of people "gunning" the term used for fleeing the country—a decision to quit meant leaving nearly everything behind. Exchange controls can get little money out, property values are in any case falling, and job prospects in the western world for ex-Rhodesian lecturing staff

position of working with academics, as well as attempting to do research on this illness. She is able to do this, and findings clearly and sympathetically and during the discussion afterwards, two women in the audience reveal themselves as anxieties. One is now cured and the other, a young woman from the town who heard about the talk on the local radio, is clearly still suffering, but equally clearly relieved to be able to talk about her difficulties. This makes the whole thing seem worthwhile, and which Atticus of *The Sunday Times* who sneered at the Bradford advert for a new follow to run the series could be here.

Thursday

My day for a talk on male hegemony, family planning to a group of family planning doctors and nurses. I'm to join them for lunch and speak afterwards. After the morning's work, snatch up my books and briefcase, glance at my diary and see that I'm heading for the Valley Hotel in Harrogate. Arrive there, and find to my horror that there is no such place. While a hotel receptionist phones round all the local hotels I (now teetering on the borderline of sanity and fortified only by a gin and tonic) go outside and approach likely looking answers to ask if they happen to be family planning doctors.

I stop this line of inquiry when one of them looks at me frostily (as only a Harrogate lady can) and asks: "Why my dear, do you need one of these?" A psychiatrist proposing the vote of thanks after the meeting has eventually been traced to the palatial headquarters of the area health authority and I have given my talk: offers several possible explanations for the Valley Hotel error, none of which seem quite right. Any further suggestions to me on a postcard please. A week in Bradford for the lucky winner.

One of the worst duties to which one lecturer had been assigned had been a guard duty at "protected villages". The PVs represent an attempt to isolate guerrillas from the tactics employed in Malaya and more recently in Vietnam to isolate guerrillas from prospective guerrilla infiltration. Surrounded by barbed wire and with intensive lighting, supervised by a "keener" with the security guard is mounted, the villages suffer from all the disadvantages of the besieged fortress. Driven at night within the fence the villagers are obliged to travel many miles to their fields at daybreak. Tending to the cattle becomes almost impossible and the herds disperse or provide food for "the boys in the bush".

Under intense pressure from its black members and their supporters, the administration is yielding and dismantling the PVs. The hostility they generated made guard duty the least of their humiliations and dangerous obligation.

University staff were pessimistic about the security position and the politics of the internal settlement. The crucial test of the participation of Bishop Muzorewa and the Reverend Stikelo in the internal settlement was clearly the restoration of peace and security and the orderly progress to elections. Despite the enormous limitations on the flow of information in a heavily censored society, our hosts considered the war to be going badly. Some might be given to optimism as their troops as part-time soldiers with the Rhodesian regular army were generally successful.

The army packs a punch and wins all major engagements. But guerrilla warfare, of course, relies upon avoiding such pitched battles and the guerrillas' friends reflected the increasing and becoming more widespread. Only three days earlier the *Rhodesia Herald* had published details of a brutal martial law in certain areas, one such reaching to within 25 miles of Salisbury.

The future looked bleak. Although there was growing number of people "gunning" the term used for fleeing the country—a decision to quit meant leaving nearly everything behind. Exchange controls can get little money out, property values are in any case falling, and job prospects in the western world for ex-Rhodesian lecturing staff

position of working with academics, as well as attempting to do research on this illness. She is able to do this, and findings clearly and sympathetically and during the discussion afterwards, two women in the audience reveal themselves as anxieties. One is now cured and the other, a young woman from the town who heard about the talk on the local radio, is clearly still suffering, but equally clearly relieved to be able to talk about her difficulties. This makes the whole thing seem worthwhile, and which Atticus of *The Sunday Times* who sneered at the Bradford advert for a new follow to run the series could be here.

My day for a talk on male hegemony, family planning to a group of family planning doctors and nurses. I'm to join them for lunch and speak afterwards. After the morning's work, snatch up my books and briefcase, glance at my diary and see that I'm heading for the Valley Hotel in Harrogate. Arrive there, and find to my horror that there is no such place. While a hotel receptionist phones round all the local hotels I (now teetering on the borderline of sanity and fortified only by a gin and tonic) go outside and approach likely looking answers to ask if they happen to be family planning doctors.

Helen Roberts

The author is a lecturer in sociology, Bradford University.

My day for a talk on male hegemony, family planning to a group of family planning doctors and nurses. I'm to join them for lunch and speak afterwards. After the morning's work, snatch up my books and briefcase, glance at my diary and see that I'm heading for the Valley Hotel in Harrogate. Arrive there, and find to my horror that there is no such place. While a hotel receptionist phones round all the local hotels I (now teetering on the borderline of sanity and fortified only by a gin and tonic) go outside and approach likely looking answers to ask if they happen to be family planning doctors.

Under intense pressure from its black members and their supporters, the administration is yielding and dismantling the PVs. The hostility they generated made guard duty the least of their humiliations and dangerous obligation.

University staff were pessimistic about the security position and the politics of the internal settlement. The crucial test of the participation of Bishop Muzorewa and the Reverend Stikelo in the internal settlement was clearly the restoration of peace and security and the orderly progress to elections. Despite the enormous limitations on the flow of information in a heavily censored society, our hosts considered the war to be going badly. Some might be given to optimism as their troops as part-time soldiers with the Rhodesian regular army were generally successful.

The army packs a punch and wins all major engagements. But guerrilla warfare, of course, relies upon avoiding such pitched battles and the guerrillas' friends reflected the increasing and becoming more widespread. Only three days earlier the *Rhodesia Herald* had published details of a brutal martial law in certain areas, one such reaching to within 25 miles of Salisbury.

The future looked bleak. Although there was growing number of people "gunning" the term used for fleeing the country—a decision to quit meant leaving nearly everything behind. Exchange controls can get little money out, property values are in any case falling, and job prospects in the western world for ex-Rhodesian lecturing staff

position of working with academics, as well as attempting to do research on this illness. She is able to do this, and findings clearly and sympathetically and during the discussion afterwards, two women in the audience reveal themselves as anxieties. One is now cured and the other, a young woman from the town who heard about the talk on the local radio, is clearly still suffering, but equally clearly relieved to be able to talk about her difficulties. This makes the whole thing seem worthwhile, and which Atticus of *The Sunday Times* who sneered at the Bradford advert for a new follow to run the series could be here.



HIGHER EDUCATION SUPPLEMENT
See Printing House Square, London WC2X 8LZ. Telephone 01-837 1234

Science budget shift minimal

Shift in the balance of most science budget to favour the Research Council at the expense of the four others, in particular the much maligned Social Science Research Council, will be the most natural science—unlike, of course, the ARC, the MRC, or the NERC, their research support. But it is a danger that it may be interpreted.

The first place the shift is to be seen is in the SRC's share of the science budget. Although at a sharply reduced rate as a result of the cuts, the SRC will still be able to fund a number of projects which are of great importance to the scientific community. The SRC is swimming against the tide, not with it.

The problem of how to fund "big science" adequately also remains as intractable as ever. The marginal shift of resources can do little to help—except perhaps to raise morale which is not a negligible achievement. The only stable solution in many of the most expensive areas of fundamental research, of course, lies in international co-operation. But the difficulties raised by political haggling on an international stage have so far proved almost as great as those of resource starvation on the national stage.

So should natural scientists, if they are wise, derive too much comfort from the troubles of social scientists. Fashion is a fickle ally and prejudice is an enemy of all scientific enquiry. The SSRC may have cut out of science, particularly since the failure of the "British Brookings" initiative. But external hostility has been an important factor in this—more important perhaps than any failure of intellectual creativity on the part of the social sciences.

So the congratulations that are due to Professor Allen have to be balanced by the commiseration due to Mr Robinson, and his successor, Mr Posner. In any case tinkering with the science budget will not make the major problems of the social sciences disappear. The total amount of "big science" is the worst, but not the only, victim of resource starvation and the increasingly rickety structure of research funding (whether the erosion of the social support system of research, or the erosion of career opportunities for researchers). Adjusting the car-burettor is not much use when the steering has gone and the petrol run out.

The smell of decay

Higher education has become a taboo subject. After the 1960s it is slipping slowly from the public mind. One of the saddest, and most damaging, results of the cuts in higher education is that so many colleges of education in the past three years have been closed. The education of school teachers will always be one of the most important tasks of any future government, and if any future government is to have real substance in the service of training teachers will be a most significant element in it.

There are two ways in which the position of teacher education must be safeguarded. First, there must be a revival of confidence in it within the public sector and it must be given firm institutional foundations. There is a strong case for developing, as an experiment, a few pedagogical institutes which would accept more and more remote subjects from teacher training and which in return would be given a significant stake in postgraduate and in-service courses in their region and safeguarded from any future cuts.

Second, the universities must be encouraged to take a renewed interest in teacher education. The universities would fit in well with their public expression of commitment to continuing education. They must take up the leading role they put down when the Robbins proposal was rejected. The Government 14 years ago put their trust in the universities, and they must do so again. In this connection it is encouraging to see that the vice-chancellors' conference and UCR have arranged a conference on the theme of Education in London—its role in the future of the university involvement in teacher education.

Scotland also contains, however, two other higher education institutions—Napier College, Edinburgh, and Glasgow College of Technology—which are similar in every respect to the "polytechnic" CIs, except that they are administered by local authorities. In terms both of total student numbers and numbers registered with the CNAA Glasgow College is the largest of the five.

Thus of the five colleges which make up the "polytechnic" sector in Scotland, to which you presumably intended to refer, only three are CIs. There are eight other CIs which do not come into that category. Yours faithfully, ALAN HUTTON, Senior Lecturer in Economics, Glasgow College of Technology.

least care about teacher training. That, after all, was their business. The great danger now is that teacher training will be no one's business.

This atrocity of commitment to teacher education must be stopped. The education of school teachers will always be one of the most important tasks of any future government, and if any future government is to have real substance in the service of training teachers will be a most significant element in it.

There are two ways in which the position of teacher education must be safeguarded. First, there must be a revival of confidence in it within the public sector and it must be given firm institutional foundations. There is a strong case for developing, as an experiment, a few pedagogical institutes which would accept more and more remote subjects from teacher training and which in return would be given a significant stake in postgraduate and in-service courses in their region and safeguarded from any future cuts.

Second, the universities must be encouraged to take a renewed interest in teacher education. The universities would fit in well with their public expression of commitment to continuing education. They must take up the leading role they put down when the Robbins proposal was rejected. The Government 14 years ago put their trust in the universities, and they must do so again. In this connection it is encouraging to see that the vice-chancellors' conference and UCR have arranged a conference on the theme of Education in London—its role in the future of the university involvement in teacher education.

Scotland also contains, however, two other higher education institutions—Napier College, Edinburgh, and Glasgow College of Technology—which are similar in every respect to the "polytechnic" CIs, except that they are administered by local authorities. In terms both of total student numbers and numbers registered with the CNAA Glasgow College is the largest of the five.

Thus of the five colleges which make up the "polytechnic" sector in Scotland, to which you presumably intended to refer, only three are CIs. There are eight other CIs which do not come into that category. Yours faithfully, ALAN HUTTON, Senior Lecturer in Economics, Glasgow College of Technology.

LETTERS TO THE EDITOR

Hierarchical system of government

Sir—I write as a head of department in an institute of higher education who is interested in the debate currently being conducted in *THEES* on the deficiencies of the "hierarchical system of government" in higher education. These deficiencies, of course, are there for all to see. The system is riddled in the transfer of people distinguished in one sphere to the academic, to another and very different one, the administrative. It inevitably functions to a greater or lesser extent through a multiplicity of committees, many of which can be less than riveting and some of which can be depressingly self-generating. It contains the implicit and ever-present threat of severing one from the realities of teaching, learning and the students.

Let us exercise considerable care. The system is easy to knock. Its replacement by an adequate and more meaningful alternative takes us on to the difficult part. Catherine Belsey's recent suggestion, for instance, that part of the solution might lie in the "collective department" (*THEES*, October 6) immediately induces scepticism. What consistency of policy or com-

sistency of the application of agreed policy, given the changing personnel at the "top" of the departmental pyramid?

What of what one might call the "personality grid"? As teachers within a department function best when they can operate as teams through acquired knowledge of the personalities, attitudes and potentialities of their colleagues, so do members of management and administrative teams in higher education. And this process takes time.

These points are raised in no reactionary spirit. A debate on the deficiencies of the "hierarchical system" seems to me necessary to one who fears that it may eventually leave him with a low intellectual and academic blood count, as it clearly does to Miss Belsey looking at it from a different vantage point with schizoid feelings. But let the debate be joined by all ranks responsibly and without loss of sight of the need for a system of government which is both effective and efficient.

Yours sincerely, TONY TAYLOR, West Glamorgan Institute of Higher Education, Swansea.

Sex discrimination

Sir—We are not at present in possession of sufficient details to be able to pass an opinion on the judgment in the case of Dr M. Rendel's claim that she suffered sex discrimination in her work.

We do, however, know enough to be certain that in bringing her case she was clear that she had been discriminated against. We therefore have no doubt that her claim is well founded. It is the more surprising to have occurred under an Act which is so new and where, therefore, there is inadequate experience upon which a claimant may judge whether her case is likely to be seen as reasonable.

The judgment is obviously personally damaging to Dr Rendel who, to our knowledge, is a sound academic with much to offer as researcher, teacher and administrator.

Face to face teaching

Sir—With reference to Judith Judd's recent article on the Exeter University of St Luke's merger I was somewhat concerned about Professor Wragg's point that most colleges have done a lot of face to face teaching and not enough research. This is open to question. If research is to be maintained throughout each school year with full responsibility for the work being done.

If this were the case real teachers would respect those who at the moment are merely talking about what, in many cases, they are afraid of doing themselves. Yours sincerely, I. MAYNARD, Principal Lecturer, Shoreditch College.

Common error

Sir—In your stimulating leading article "Four reforms to open up the universities" (*THEES*, October 29) you fall into an error which is unfortunately common in discussions on higher education policy in Scotland. In the second paragraph you advocate "the extension of the university sector to include the central institutions in Scotland".

There are 14 central institutions in Scotland: 11 administered by the SED and three by the Department of Agriculture. Of these the majority are "monotechnic" colleges in such fields as art, home economics, agriculture and nautical studies. Only three—Paisley College of Technology, Dundee College of Technology, and Robert Gordon's Institute in Aberdeen—are

Costs of OU

Sir—The defence of the Open University's estimate of OU costs and criticisms of Mace's criticisms are well made by Ewan Henderson (*THEES*, October 20).

Cost-benefit analysis in this area has to take account of so many variables, some of which are exceptionally difficult to quantify, that a satisfactory comparison of Open University and conventional university costs is very difficult. I have recently had the privilege of interviewing OU graduates who had been posted overseas by the conventional education system and was moved by their accounts of the remarkable impact the second chance, so to speak, had made on their own lives, those of their families and the communities in which they live. How can one possibly put a weighting on this sort of evidence?

There is, however, a dimension to the discussion which can be quantified. What both Mace and Henderson have not considered is that OU courses have teaching materials which are not only used in conventional universities as tutorial aids (an additional conventional university cost?) but which are also sold by OU Educational Enterprises all over the world.

In the same edition of *THEES* in which Henderson's letter appears, Kenneth Thompson describes a visit of OU staff to China including John Cox, managing director of OUP, to discuss the use of multi-media courses for distance teaching in higher education. The profits from the sale of course materials and television and radio programmes, while they are not directly set against the expenses of producing individual courses, do represent a considerable revenue which reduces the OU costs per student and ought to be incorporated in the cost analysis.

Yours faithfully, COLIN R. RICHES, Lecturer in the Faculty of Educational Studies and Course Team Chairman E321 Management in Education, The Open University.

CNAA regulations

Sir—The essential silliness of some of the new CNAA regulations governing supervisors for postgraduate students is not confined to the points raised by your recent contributor M. Brown and others.

Although I have already completed two research degrees I am not eligible to supervise a postgraduate student working on a business history of Avey's Britain if at the same time I wish to continue my part-time PhD. The powers of CNAA appear even to exceed those of the British government since the regulations apparently preclude one registering at an American university for a research degree and supervise a CNAA registered postgraduate at the same time.

Research is always time consuming and therefore difficult to undertake with a full lecturing commitment. It seems counterproductive of CNAA to accept regulations which, in effect, will make it even more difficult. Yours faithfully, M. A. HANDFORD, Senior Lecturer in History, Leicester Polytechnic.

Field of literacy

Sir—Not one of 12 workers in the "field of literacy" appears to know the singular of "criteria" (*THEES*, October 13). CNAA must, therefore, be congratulated, not only for their attempt to raise standards in this field, but also for their solicitude in eliciting a response which demonstrates so clearly the need for improvement!

Yours faithfully, BRIAN COOK, Glasgow Royal Infirmary.

Letters for publication should arrive on Tuesday morning at the latest. They should be as short as possible, and the editor reserves the right to cut or amend them as necessary. Move letters on page 29